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AUTHOR Reubens, Beatrice G.; Harrisson, John A. C.
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ABSTRACT

A study of apprenticeship systems in a large number of foreign countries revealed considerable interest in expanding and improving apprenticeship systems, both as initial training systems and as a way of easing the transition from school to work and relieving youth unemployment. The American apprenticeship system differs from those of other English-speaking countries by a relative absence of skill shortages, the alternative routes to skilled status, the absence of training boards or councils, the concentration on construction trades in apprenticeship, and the advanced age of apprentices. In these other countries apprentices are concentrated in relatively few occupations, and full-time vocational education competes with or is replacing apprenticeships in many occupations. On-the-job training includes broadbased introductory training and pay incentives. Successful related instruction depends upon administrative or institutional coordination of instruction and on-the-job training. Few foreign countries have policies to expand minority and female program participation. In most countries public finance of apprenticeship systems and participants has increased. Study of these foreign systems yields few policy implications for the American system. Implications for the American system include increasing the number of apprenticeships and occupations using apprentices, and strengthening the role of the Federal Committee on Apprenticeship. (A list of countries visited is appended.) (MN)

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Apprenticeship in Foreign Countries

ED195726

R&D Monograph 77

U.S. Department of Labor
Ray Marshall, Secretary

Employment and Training Administration
Ernest G. Green
Assistant Secretary for Employment and Training
1980

This report was prepared by Dr. Beatrice G Reubens, with the assistance of Mr. John A.C. Harrisson, of the Conservation of Human Resources Project at Columbia University under research and development grant No. 20-36-79-01. The Office of Research and Development requested that the author prepare a technical report on *Apprenticeship in Foreign Countries* in connection with the Bureau of Apprenticeship and Training's project in this field and in association with Hugh C. Murphy, former Administrator of the Bureau of Apprenticeship and Training. The interpretations or viewpoints presented herein do not necessarily represent the official position or policy of the Department of Labor. The author is solely responsible for the contents of this report.

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FOREWORD

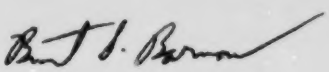
This monograph discusses trends and developments in some countries with well-developed apprenticeship programs, and considers what the United States can learn from them.

The monograph, prepared by Dr. Beatrice G. Reubens of the Conservation of Human Resources Project, Columbia University, was an outgrowth of the technical assistance she provided to the Task Force on Apprenticeship in Foreign Countries, supported by the Department of Labor and headed by Hugh C. Murphy, former Director of the Bureau of Apprenticeship and Training.

In comparing apprenticeship in the United States and other English-speaking countries (Australia, Canada, Great Britain, Ireland, and New Zealand), the author distinguishes the American system by its alternative routes to skilled status, absence of training boards or councils which treat apprenticeship as one form of training, concentration of apprenticeship in the construction trades, and the relatively advanced age of apprentices. The author also notes that the United States has one of the lowest ratios of apprentices to civilian employment among advanced countries.

One of the recommendations the author makes is to develop measures for ensuring better retention of apprentices through the entire training period. Suggestions include supplementing programs based on fixed time periods of instruction with competency-based tests, reduction in the average age of entry, and job security or alternative arrangements over seasonal and cyclical downturns in the construction trades.

This monograph will be useful in providing information to help expand and improve apprenticeship in this country as an initial training system, as a method of easing youth's transition from school to work, and alleviating youth unemployment.



BURT S. BARNOW
Acting Director
Office of Research
and Development

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I. SUMMARY

1. Visits to a large number of foreign countries and study of their apprenticeship systems reveal considerable current interest in the expansion and improvement of apprenticeship, both as an initial training system and as a way of easing the transition from school to work and relieving youth unemployment.

2. The apprenticeship systems in industrialized market economy countries can be divided into two groups on most issues: the continental European countries and the six English-speaking countries (Australia, Canada, Great Britain, Ireland, New Zealand and the United States). While sharing many characteristics of the English-speaking countries' apprenticeship systems, the American situation can be distinguished from that of the five other countries by a relative absence of skill shortages, the alternative routes to skilled status, the absence of training boards or councils which treat apprenticeship as one form of training, the concentration on construction trades in apprenticeship, and the advanced age of apprentices.

3. Austria, Germany and Switzerland are the strongholds of apprenticeship and have the widest range of apprenticeable occupations. The U.S. has one of the lowest ratios of apprentices to civilian employment among advanced countries and is one of the few countries where the number of apprentices declined from 1974 to 1977 in spite of an increase in total employment. If apprenticeship in the U.S. was on the same scale as in Germany, Austria and Switzerland, there would be over 7 million American apprentices in training instead of a quarter of a million.

4. While there is a general trend to reduce the number of apprenticeable occupations by combination or deletion, some new occupations have been added and Norway's new proposed law seeks to broaden the scope of apprenticeship. Most English-speaking countries are reluctant to enlarge the occupational scope of apprenticeship. Apprentices are concentrated in relatively few apprenticeable occupations in most countries, due to the offers of employers, governed chiefly by current needs, and subsequently the choices of apprentices, governed by fads in some countries. Fulltime vocational education, often with a practical work component, competes with or is replacing apprenticeship in many occupations. In several countries there has been a long-run absolute or relative decline in apprentice numbers in certain occupations, changing the composition of apprenticeship. Graphic arts occupations have been declining absolutely and relatively in virtually all countries, while food occupations and services have been increasing in many countries.

5. On-the-job training in foreign countries increasingly includes broadbased introductory training; training by stages; individually-paced learning; performance-based pay increments; continuous internal assessment; practical training in special centers; and block release

for related instruction. The duration of apprenticeships scheduled for 4 years or more is still being reduced, but it is argued by some that the contribution of apprenticeship to maturation suggests a halt to further reductions. Problems of ensuring that the content and quality of on-the-job training are satisfactory exist in most countries and a variety of approaches and procedures have been suggested to improve the situation. Special attention is given in some countries to raising the qualifications and pedagogical skills of the trainers in the workplace.

6. Related instruction, usually offered during paid working hours as a matter of course, is almost universally difficult to coordinate with practical on-the-job instruction. The countries which are least dissatisfied with their situation have administrative or institutional arrangements to bring the two elements closer together.

7. The rate of noncompletion of apprenticeship varies considerably among countries. Among the most important factors in reducing dropout rates are: maintaining a low average age of entry; duration of three years or less; security of employment continuity; modular training; frequent assessment; individually-paced instruction; introductory practical training in centers; block release for related instruction; recognized credentials for completion; and a large wage increment for completion and skilled status.

8. Preapprenticeship is increasingly used to prepare special groups for apprenticeship or to reduce the amount of time spent in apprenticeship itself.

9. Federal-State relations in the administration of apprenticeship are eased if one or more of the following are present: national training councils with State representatives as members, interstate certification programs, and Federal financial assistance. Employer complaints about governmental interference are endemic and widespread and probably are inherent in any attempt to improve and extend training.

10. Few foreign countries have devised policies to expand the participation rates of minorities and women (in male-intensive occupations). German incentives to employers to take females into these trades are of interest. The special efforts made in some continental countries to absorb physically, mentally and academically handicapped candidates are notable, although the U.S. apprenticeship system, like those of other English-speaking countries, is less well adapted to such programs.

11. The most elaborate information, guidance and placing services for potential apprentices are found in the countries where a large proportion of the age group enters apprenticeship. However, these countries' low dropout rates can be explained by other factors as well. An

examination of the comprehensive and well-patronized German placement system indicates that most apprenticeship placements are made through direct interviews with the firms rather than through the special employment service. Counseling services for apprentices are valuable, but in practice suffer in most countries from an insufficient number of counselors, conflicting tasks and loyalties, and other weaknesses.

12. Studies of employers' apprenticeship costs are few and of dubious accuracy to the extent that they are based on self-reporting, and they are plagued by methodological issues. Nevertheless, a major rationale for governmental financial assistance to apprenticeship employers is the net costs borne by those who provide training as well as the evidence of rising costs.

13. A major development in most countries has been the increased public financial assistance to apprenticeship systems and participants. Government subsidies take the form of partial or full tax deductions, tax credits, tax exemptions and rebates, direct grants and coverage of part or all of the capital and operating costs of training centers and schools. Financial assistance is given to firms to stimulate intake of new apprentices and to retain existing apprentices during cyclical downturns as well as in other periods to increase numbers overall. Direct wage subsidies, especially to cover the time spent away from the workplace, are most common. These in some measure also compensate for shortening the duration of apprenticeships. Most wage subsidies are for all new apprentices, but a few use a marginal principle in which subsidies are given only for new apprentices above a designated level. Spare training capacity is subsidized in private and public enterprises to provide at least the first year's training for apprentices for whom no employer can be found. Apprentices from low income families and those who incur travel and lodging expenses also are subsidized in some countries. In most countries the government covers all costs of providing related instruction in schools.

14. The policy implications of foreign apprenticeship experience are slight if the objective is to find lessons for the U.S. in regard to the access of minorities and women. However, a full and wide-ranging list of suggestions can be drawn from foreign practice and trends in other subjects, provided that problems of transferability and acceptability in the U.S. are ignored. Among the ideas which are unlikely to be adopted in the near future are: create mandatory industry training boards; limit apprenticeship to youth while providing similar skill training and qualifications for adults; require trainers in the workplace to be qualified as instructors and supervisors; make related instruction a paid part of the regular work week; coordinate

apprenticeship and vocational education on a compulsory basis; strengthen the Bureau of Apprenticeship Training in functions and staff.

15. Given the objectives of U.S. policy and the special characteristics of the American apprenticeship system, a more realistic appraisal of foreign developments and trends in apprenticeship suggests only a few possible directions in short-term U.S. policy.

a. Increase in total numbers in apprenticeship

Financial incentives and aid to stimulate apprentice intake might be considered either in a marginal or total form and could be offered in a special program or as part of a youth employment program (see Government Financial Assistance). Reductions in the dropout or non-completion rate, which would add to total numbers, might be approached by the introduction or wider application of features which appear to decrease dropout rates in other countries (see Noncompletion of Apprenticeship).

b. Use of apprenticeship in more occupations

Personnel in repair services for motor vehicles, office machines, television sets, electrical appliances and other consumer goods have had apprenticeship training in virtually all of the countries. The adoption of a competency certification requirement to operate a business or practice such trades would encourage apprenticeship training on a much larger scale than now exists through voluntary action. Special incentives might be needed to keep such training from occurring chiefly in proprietary or public fulltime school courses.

c. Role and functions of the Federal Committee on Apprenticeship

The Federal Committee on Apprenticeship (FCA) and apprenticeship alike could be strengthened by a variety of measures: the introduction of a fulltime director and small staff; a link to or incorporation in a new National Vocational Training Council which itself could be attached to the National Commission for Employment Policy; establishment of an Apprenticeship Clearing House or utilization of the National Center for Research in Vocational Education, to carry out research and experimentation and disseminate information on apprenticeship methods; establishment of an active role for FCA in the National Association of State and Territorial Apprenticeship Directors (NASTAD) in order to sponsor effective training practices, portability of credentials, harmonization of State laws, efforts to publicize apprenticeship among employers and guidance councelors in schools, and the increased use of paid worktime for related instruction.

II. INTRODUCTION

In an American study of apprenticeship in foreign countries two possible approaches can be taken. Major or exclusive attention can be directed to their policies and practices on the apprenticeship issues and problems which are currently of paramount interest in the United States. Alternatively, foreign systems can be analyzed mainly in terms of the developments and changes in the policies and practices of apprenticeship in those countries, paying due attention to their priorities.

The first method has at least two drawbacks. As matters stand today, a review of foreign apprenticeship from the viewpoint of the American priority issues would yield scanty information and few policy leads. But a more serious objection can be raised, namely, that such an approach assumes that the United States need not question the entire range of its apprenticeship policy and practice and cannot learn from more general trends in other countries. Rejecting the first method on these grounds, this review hopes to widen the horizon by examining developments in other countries, especially those which seem to be absent or rare in the United States. At the same time, a special attempt has been made to report what other countries are doing on the American priority issues.

In presenting foreign policy and practice, this report emphasizes central tendencies and general trends rather than giving voluminous information on each country which inevitably produces a complex if not overwhelming mass of detail. While diversity in policy and practice is important and should be studied, to the extent that prevailing American practice diverges from that found in most other countries, a brief report such as this one can contribute more by stressing broad trends. It should also be noted that the citation of a trend in foreign countries does not imply that a similar trend has not appeared somewhere in the United States. Our concern, however, is with predominant American practice which must constitute the basis of cross-national comparisons.

The period during which the study was conducted has been one of great activity and growth in apprenticeship in many countries. There has been a revival of interest in apprenticeship where it had been lagging, the revision and updating of legislative and administrative arrangements in many countries, increased government financial aid, and other evidence of public interest in improving the system and increasing the numbers in the apprenticeable occupations. Apprenticeship is receiving wide support, both as an initial training system of importance to the economy and as a means of easing the school-to-work transition and relieving youth unemployment. However, in the great majority of countries this support has been proffered without any strong effort to extend apprenticeship to additional occupations and little concern about penetrating new occupations and fields, such as energy conservation and environmental protection.

III. BACKGROUND ELEMENTS

APPRENTICESHIP SYSTEMS

A valid starting point is to ask whether the term "apprenticeship" is used uniformly in all countries. It seems clear that certain core elements are present in all countries claiming to have an apprenticeship system. Apprentices are those who participate in an industry-based initial training system under a contractual employment relationship in which the firm promises to make available a broad and structured practical and theoretical training of some length in a recognized occupational skill category. Completion of the apprenticeship establishes skilled worker status and transferable qualifications, although it may not be the only route to skilled employment. This definition is accepted and used in this report.

In a few countries the name "apprenticeship" is sometimes applied to systems which do not conform to these criteria. Japan, which once had a large traditional apprenticeship system and now has well-developed firm-specific training within the enterprise, has felt the lack of a modern apprenticeship system whose journeymen could move easily among firms and industries. To meet this need, the government's manpower agency created broad skill training courses and skill tests which are offered in public vocational training centers; these courses are at times cited as apprenticeship. Japan has not been included in this report.

A somewhat different situation appears in Scandinavia where recognized apprenticeship exists in each country, but a certain erosion of the concept is visible. It is becoming increasingly difficult to distinguish apprenticeship as such from the use of the employers' premises as a part of an educational sequence in which pupils are paid as trainees or employees. This is especially true in Sweden. Denmark's Basic Vocational Education and Training Law of 1977 (EFG)* establishes a parallel system to apprenticeship, or an alternative in those occupations where management and labor agree; EFG includes training in the workplace. In Norway and Finland most apprentices have several years of fulltime vocational or mixed general and vocational education before they enter a brief apprenticeship, possibly lasting only one year. These changes in which the balance of control is shifting away from the firm are occurring with the full support of the trade unions which have been the chief critics of traditional apprenticeship. Similar modifications of apprenticeship also are visible elsewhere, but appear to be most general in Scandinavia.

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*Erhvervsfaglige grunduddannelser (Dutch).

Like all human institutions, apprenticeship undergoes constant change. To some people it appears that apprenticeship has been abandoned if the government assumes a larger financial or administrative role or if training is shortened or reorganized so that the first year is spent in off-the-job training in a special center or a school. These developments do not invalidate the essential features of apprenticeship, nor do they mean the end of the system. A large number of industrialized countries still have strongly entrenched apprenticeship systems which accept all of the core elements. These countries can be divided into two basic groups. One group consists of the six English-speaking countries, Great Britain, Ireland, U.S., Canada, Australia and New Zealand. Descended from the ancient British system, and based on the transmission of British trade union structures and traditions, the apprenticeship systems in these countries have certain common features which usually are absent in the second group, the continental European countries. There is, of course, considerable diversity within the two major groups of countries.

In essence, and with some oversimplification, apprenticeship in the English-speaking countries is a privately controlled aspect of the industrial relations system in which trade unions, often organized on a craft basis, have a decisive influence on the number of apprentices, the form, content, length of training, the ratio of apprentices to journeymen, and apprentice hours and wages. By contrast, apprenticeship in the continental European countries is a public system in which collective bargaining has final jurisdiction only over apprentice wage levels and not even that in some countries.

Some of the results of this general difference, expressed in broad comparative terms, are:

- Government, legislation and employers' organizations are generally less important and trade unions are more powerful in the English-speaking than in the continental European countries.

- Apprenticeship is regarded as much a part of the educational as the employment system in continental Europe and Ministries of Education have a large administrative role. In the English-speaking countries, the employment relation is paramount and Ministries of Labor or Employment have primary or sole responsibility.

- Apprenticeship intake is more limited and controlled in the English-speaking countries.

- A narrower range of occupations is actually or potentially apprenticeable in English-speaking countries, and the primary decisions on this subject are private rather than public.

- The duration of apprenticeship is longer in the English-speaking countries.

- Standards of training are more diverse and less supervised in the English-speaking countries.

- Off-the-job training and related instruction occupy fewer hours of the year in English-speaking countries.

- Dropout and dismissal rates generally are higher in English-speaking countries.

- External examinations on completion of apprenticeship usually are not required in English-speaking countries and completion is judged by time served. Skilled workers' pay rates may not depend on completion.

- Apprentice wage rates as a percent of a skilled worker's are much higher in English-speaking countries, often reaching 90-95 percent toward the end of training, compared to the usual maximum of 50-60 percent in the continental countries.

Further distinctions should be made between American apprenticeship and that of the other English-apeaking countries. While the basic similarity remains, American apprenticeship has developed under somewhat different circumstances. Without forgetting the wide diversity under the U.S. Federal system, the most important differences between the U.S. as a whole and the five other English-apeaking countries are:

- The other countries all complain constantly of country-wide skill shortages, but the U.S. has had only brief and local experience with such shortages. This may be due to the greater tendency of American industry to fragment skills and simplify training, avoiding the formal apprenticeship system in many occupations.

- In the U.S. completed apprenticeship is only one of the ways to acquire an accepted skill status and pay; upgrading on the job is well regarded. Bricklaying may be the only trade in the U.S. in which a majority of union journeymen have completed an apprenticeship. But in the other English-speaking countries, trade unions have limited the training and acceptability of skilled native workers in a large number of occupations to those who complete apprenticeships. Employers also have expressed dissatisfaction with upgraded or imported skilled workers.

- The U.S. has not established Training Councils or Industry Training Boards which now exist in all of the other English-speaking countries. These agencies are concerned with apprenticeship as one form of initial skill training and one type of training over the worklife of individuals; they are generally dissatisfied with the domination of apprenticeship by industrial relations considerations, unenthusiastic or negative about the extension of apprenticeship to other trades, and at times have engaged in efforts to by-pass apprenticeship.

- There is a greater concentration of American apprenticeship in the construction trades than exists in the other countries. Because of this dominance, trade unions are more important in the U.S. apprenticeship system, since construction trade unions are more influential than employers in the Joint Apprenticeship Committees.

- Unregistered apprenticeship appears to be relatively larger in the U.S., although Canada also has substantial numbers.

- Apprenticeship is a teenage youth program in all countries, except Canada and the U.S.

- Related instruction usually or always is given during working hours and is paid time in other countries. In the U.S., a majority of apprentices take related instruction outside of working hours at their own expense.

- Federal government policy in the U.S. has placed a stronger emphasis on the participation of minority groups and females than is found in any other country.

While these differences between the U.S. and the other English-speaking countries are important, such countries remain the most comparable to the U.S. and somewhat greater attention therefore is given below to relevant trends and developments in their apprenticeship systems than to the continental European countries. The sharp division between the two groups of countries should not obscure the fact that many modifications and common trends are visible which are drawing the two groups of countries together. However, the varied backgrounds against which these trends are occurring and the obstacles to industry-wide change in the English-speaking countries should be borne in mind, especially in considering possible transfers of experience.

EXTENT OF APPRENTICESHIP

The number of apprentices in each country is the product of a complex set of variables, reflecting traditional and institutional factors affecting the coverage of apprenticeship as well as demographic developments, the structure of the economy and the pace of economic development. In Table 1 the total number of officially counted

apprentices in 1974 and 1977 in 17 countries is given in absolute numbers and as a proportion of total civilian employment, the most useful base for a cross-national comparison. Among the 17 advanced countries, Germany clearly leads in absolute numbers of apprentices, followed by Italy and Great Britain. When the countries are ranked by ratios, the leaders in both years are Austria, Germany, and Awitzerland. New Zealand, Denmark, and Australia are in a second group. Italy's relatively high ratio should be discounted, both because training in many cases is unsatisfactory or nonexistent (since employers are motivated by the exemption from Social Security taxes) and because noncompletion rates are extremely high (70 percent). In both 1974 and 1977, the U.S. had a lower ratio than any other country except Sweden and Finland. If apprenticeship in the U.S. was on the same scale as in Austria, Germany, and Switzerland, there would currently be over 7 million American apprentices instead of a quarter of a million.

The count of the total number of apprentices is affected by definitional, statistical and institutional factors which may produce minor errors in the ranking of countries. For example, a form of training which in one country is called apprenticeship may be excluded in another. Another issue is the extent of unregistered apprenticeship. Some countries have training in apprenticeable occupations which conforms in all major respects to approved programs, but is not registered as apprenticeship chiefly because employers dislike the governmental red tape or fear government interference. Another kind of unregistered apprenticeship consists of training which departs somewhat from approved standards. This has existed in France since the 1971 law, but may have diminished recently as government subsidies have been offered for new apprentice intake. Some unregistered apprenticeship in the U.S. and Canada also is of the second type, but it is not possible to state either the total amount of unregistered apprenticeship or how it divides between the two types.

A survey in 1979 among firms which belong to the Machinery and Equipment Manufacturing Association of Canada indicated that 92 of 133 companies surveyed had apprenticeship programs; 56 programs were registered and 36 were unregistered. Among the unregistered firms, the reasons given for nonregistration, in order of importance, were: too much government interference or red tape; preference for their own system; no program available; too costly; too inefficient; union did not agree. Since unregistered apprenticeship is illegal or unknown in many countries, its presence in a few countries does complicate the ranking of countries. However, independent evidence suggests that the ratios in Table 1 are reasonable in their range and ranking of the 17 countries. National data on both the proportion of active skilled workers who completed an apprenticeship and the proportion of the youth age group which enters apprenticeship confirm the country rankings.

The countries can be divided into several groups in regard to the importance of registered apprenticeship as an occupational training method for skilled workers and technicians, on the one hand, and as a youth activity, on the other. Taking the nine member nations of the European Communities as a whole, apprenticeship, which includes almost 3 million young people, is the single most significant training method

Table 1. Total Number of Apprentices as a Percentage of Total Civilian Employment, 1977 and 1974

	1977			1974		
	Total Number of Apprentices	Total Civilian Employment (000)	Apprentices as a Percent of Total Civilian Employment (percent)	Total Number of Apprentices	Total Civilian Employment (000)	Apprentices as a Percent of Total Civilian Employment (percent)
Australia	123,200	6,000	2.05	131,372[a]	5,736	2.29
Canada	96,835	9,754	0.99	69,386[b]	9,137	0.76
Great Britain	n.a.	24,550	n.a.	462,940[b]	24,767[b]	1.87
Ireland	16,542	1,022	1.62	15,650	1,047	1.49
New Zealand	32,706	1,215	2.69	32,125	1,180	2.72
United States	262,586	90,546	0.29	291,049	85,936	0.34
Austria	183,659	2,988	6.15	163,551	3,010	5.43
Germany	1,397,429	24,511	5.70	1,330,768	25,689	5.18
Switzerland	151,483	2,817	5.38	143,065	2,943	4.86
Belgium	23,600	3,711	0.63	18,164	3,801	0.48
France	194,373	20,962	0.93	153,855	21,096	0.73
Italy	678,510	19,847	3.42	674,413	18,715	3.60
Netherlands	61,417	4,555	1.35	69,112	4,579	1.51
Denmark	55,362[c]	2,414	2.29	59,316	2,355	2.52
Finland	3,198	2,101	0.15	2,811	2,220	0.13
Norway	10,000[d]	1,824	0.55	8,000[d]	1,659	0.48
Sweden	1,200[e]	4,099	0.03	900[e]	3,962	0.02

Source: Number of apprentices 1974 and 1977 from national sources. Total civilian employment 1974 and 1977: OECD Observer, Annual report on the OECD Member Countries.

a. 12,000 estimated apprentices in Quebec have been added to published total which excludes Quebec.
b. Number for 1971 estimated from Great Britain, 1971 Census, Economic Activity, Part II, Tables 2, 10. London: HMSO, 1975. Total civilian employment refers to the United Kingdom in 1974.
c. 1976 data.
d. Estimated.
e. Number designated to receive government subsidy under 1959 law on apprentices. Unknown number of unsubsidized apprentices would raise Swedish total.

for skilled workers. In Germany, Austria and Switzerland, the vast majority of all skilled persons in subprofessional occupations have completed an apprenticeship and a substantial proportion of young people enter apprenticeship after compulsory schooling, with relatively few moving directly into unskilled work. In recent years, 35-55 percent of school-leavers have entered apprenticeship. The proportion of the age group 15-18 in apprenticeship training in Germany began to rise in 1977, after having dropped from almost 50 percent in the early 1960s to 34.4 percent in 1976. In Austria and Switzerland, where the proportion has been rising throughout, the source of the increased share of the youth group in apprenticeship has been the reduction of the percentage of youth going directly to the unskilled labor market. In Denmark, formerly a stronghold of traditional apprenticeship, this form of training currently absorbs only about 15 percent of the 16-20 age group, but a rather higher share for males alone. Over 20 percent of Danish youth still go from compulsory school into unskilled work, unemployment or economic inactivity. Academic education at upper secondary level currently absorbs over 40 percent of those leaving compulsory education, usually at 16.

The English-speaking countries have a more limited number and range of apprenticeship occupations. In these trades, a high proportion of skilled workers in Britain, Ireland, Australia, New Zealand and Canada have been trained through domestic apprenticeship, though in Australia and Canada skilled immigrants supplement the pool. In all of these countries, there are restraints on using other means of training than apprenticeship in the selected occupations. The proportion of male school-leavers entering apprenticeship is substantial in New Zealand and Australia but it is small in Canada; relatively large numbers in all these countries go directly to work. While the United States conforms on this last point, completed apprenticeships are not dominant, even in the limited number of trades characteristic of the other English-speaking countries.

Sweden has a small, legally recognized apprenticeship sector, subsidized by the government, in which a stated number of places are set aside for the artisan crafts. An unknown number of unsubsidized apprentices are trained through company programs, but the chances are that the firm-specific content is fairly high in their training programs.

Fulltime vocational education is much more important than apprenticeship in Belgium, Finland, France, Italy, the Netherlands, Norway, and Sweden, each for one or more special reasons which limit apprenticeship: concentration of apprenticeship in limited fields; deliberate policy to favor school-based training; and problems in obtaining enough apprenticeships in firms. The growth in general or academic education is another factor in some countries, reducing the pool from which apprentices were recruited and making employers dissatisfied with the quality of apprenticeship recruits.

A comparison of the 1974 and 1977 absolute numbers and ratios indicates the effects of the worldwide recession, but also captures longer-run trends in certain countries. Only four of the countries, the U.S., Australia, Denmark, and the Netherlands, had a decline in the total number of apprentices from 1974 to 1977 (Table 1). Of these four, Australia and the Netherlands had programs to subsidize increased intake by employers which produced a rise, though not to the 1974 levels. Denmark's decline is long-standing and has been hastened since 1972 by the competition to apprenticeship of the EFG system which combines and alternates fulltime vocational education and practical training.

Nine of the 17 countries experienced a decline in total civilian employment between 1974 and 1977, but in all of these countries, except the Netherlands, the number of apprentices increased (Table 1). France had a 26 percent rise, due to government financial aid. The number of apprentices in Great Britain in 1977 probably exceeded the 1974 total because of government support programs, detailed in the section on Government Financial Assistance. This type of aid also explains the rise of apprentice numbers in Ireland and Finland. Belgium, which uses apprenticeship chiefly in the artisan sector, had a rise in its ratio.

In Austria, Germany and Switzerland the increase from 1974 to 1977 is attributable to the fact that in prior years employers had been unable to fill all the apprenticeship posts they offered and now they could fill a higher proportion due to the combination of recession and baby boom cohorts reaching apprenticeable age. Employers in these countries also responded to appeals from government to make additional places available. In Germany, the number of new apprenticeship contracts rose from 450,000 in 1974 to 498,800 in 1977. At the end of September 1979, 640,000 new contracts had been signed.

However, some analysts reported their concern that the increased number of apprenticeships offered by German employers consisted disproportionately of posts under the Chamber of Artisan Crafts (Handwerk). Not only are many of these apprenticeships unlikely to lead to later employment with the training firm, but they are in occupations with low earnings, poor employment prospects and inferior preparation for occupational mobility. Half as a joke, it is said that the ranks of the semiskilled on the German automobile assembly lines are filled with young men who have completed a baker's, butcher's or hairdresser's apprenticeship. The ironic result, reported in West Berlin, is a shortage of bakers despite the training of excess numbers of apprentices as bakers. Confronted with such evidence, German employers and others tend to retreat from their defense of apprenticeship as a system which matches workers' skills to industry's needs. Instead, they praise

apprenticeship as a general work readiness scheme in which the specific occupation is not important but rather fits its graduates for many types of jobs. However, there is a drop in social status in semiskilled assembly line work, even if earnings are much higher than those as a skilled baker.

The record for the 8 countries in which employment increased from 1974 to 1977 is more mixed. As previously stated, the U.S., Australia, and Denmark showed a decline in the number of apprentices in spite of the rise of employment. More recent data for the U.S. indicate a rise in apprenticeship contracts. While the number of apprentices increased in Canada, New Zealand, Italy, Norway, and Sweden, only in Canada, Norway and Sweden did the ratio of apprentices to employment rise from 1974 to 1977. Sweden's rise resulted from an administrative decision under a law of 1959 to subsidize a larger number of craft apprentices than in 1974. On the assumption that all places were filled, the total would have increased from 900 to 1,200, still a very small number and ratio. Sweden is, however, considering an expansion of the official apprenticeship program and increased subsidization to employers to make apprenticeship as attractive as other youth programs which use employers' facilities.

APPRENTICEABLE OCCUPATIONS

The number of apprenticeable occupations, the fineness of occupational distinctions, the number of broad occupational classifications covered, and the methods of altering the number of apprenticeable occupations varies from country to country. In some countries occupations are not deleted even though no apprentices have been registered for years on end. In other countries, Germany, for example, an occupation that registered no apprentices for a reasonably long period and that seemed to be disappearing, would be removed by the responsible government authorities after checking that employer and labor representatives had no objections. Although some new occupations have been added, the number of recognized apprenticeable occupations in Germany has declined fairly steadily, from 606 in 1971 to 451 in 1980.

Whatever the recognized number of apprenticeable occupations, in all countries some apprenticeable occupations may have no vacancies on offer or no takers of offers, while others have many. Both the offers of employers and the desires of would-be apprentices tend to be highly concentrated in a few occupations. Judged by the number of filled apprenticeship places, the 25 most popular occupations for German girls in 1978 accounted for over 85 percent of all female apprentices; in fact, over 40 percent of the females were found in 5 occupations, including salesgirls, hairdressers, and food salesgirls. The list had been much the same in previous years. Males were slightly less concentrated, but over 65 percent were found in the top 25 occupations in 1978 and over

25 percent were in the top 5 occupations which included motor vehicle mechanics, electrician, machinist, carpenter, and house painter. Again, this pattern repeated that of earlier years.

Despite this concentration, German and other European apprenticeship is more diversified and covers a wider skill range, including administrative occupations, than American and other English-speaking countries. Table 2 shows the distribution of German apprentices among the main occupational divisions from 1960 to 1978. By contrast, a similar American distribution, shown in Table 3, indicates a far greater reliance on the construction trades as the backbone of U.S. apprenticeship. Three trades, carpenters, electricians and the pipe trades, account for two-fifths of all apprentices. A finer breakdown of the German list shows relative growth in food processing, which includes bakers and butchers, and in health care occupations, almost entirely a female area of doctors' and dentists' assistants.

Subdivision of specific occupations for apprenticeship training purposes usually is at the request of employer groups who argue that the existing training for designated occupations does not meet the needs of a particular segment of the industry. In a sense, it is a private plea for greater firm-specificity in apprenticeship training and may be resisted by the trade unions which always seek to keep training as broad as possible to ensure job mobility. Excessive specialization has characterized apprenticeship in some continental countries. At times, employers' requests for a split in an occupation may reflect the failure to revise and update training regulations when these are centrally controlled, as is the case in continental European countries.

On the other hand, combinations of occupations into a single occupation usually are initiated by a training board, council or a government department, that is, a group whose interest is primarily in training efficiency. Agreement of employers and unions as well as the other official agencies must be obtained. When combinations of occupations are suggested which cross the boundaries of two or more industry boards or Chambers (Industry, Crafts, and Trade are the chief types of Chambers of employers), it is very difficult to secure agreement. For example, in Germany apprenticeships in the same occupations are offered either under the Industry or the Crafts Chamber. This duplication does not serve apprentices' best long-run interests, although the current production needs of employers may be better met in this divided fashion.

Additions of apprenticeable occupations which are wholly new are made by a joint determination of the relevant employers and unions and/or the approval of the various authorities specified by law. Few occupations are added on the initiative of government. In Great Britain it is rare to add a new occupation, but if one is added, as was done

Table 2. Occupational Distribution of Apprentices, Germany, 1960-1978

Year	Total Number of Apprentices (000)	Percent of Total Apprentices in: Primary Sector	Fabrication and Manufacture[a]	Technical Occupations	Service Occupations
1960	1269.1	2.8	50.4	2.0	44.8
1965	1331.9	2.5	47.4	3.1	47.0
1966	1371.5	2.4	46.7	3.4	47.5
1967	1402.5	2.7	46.0	3.4	47.9
1968	1392.2	3.0	45.6	3.3	48.1
1969	1283.5	3.1	45.7	3.4	47.8
1970	1270.1	2.7	46.7	4.0	46.6
1971	1273.1	2.2	46.5	4.4	46.9
1972	1302.8	2.1	47.4	4.6	46.0
1973	1330.8	1.9	48.7	4.5	44.9
1974	1330.8	2.1	49.7	4.1	44.0
1975	1328.9	2.5	49.9	3.7	43.8
1976	1316.6	2.9	49.8	3.2	43.9
1977	1397.4	3.2	50.1	2.9	43.8
1978	1517.4	3.3	50.2	2.8	43.7

Source: Ministry of Education and Science (BMBW) Grund-und Struktur Daten 1979, pp. 88-89. Munich: Gersbach, 1980.

a. Includes construction trades.

Table 3. Occupational Distribution of Apprentices, United States, 1952-1978

Year	Total Number of Apprentices[a]	Percent of Total Apprentices in: Building Trades	Metal Working Trades	Graphic Arts	Other Trades
1952	172,477	45.2	8.5	5.8	40.5
1953	158,532	48.4	9.8	5.5	36.3
1954	160,258	51.2	11.9	6.0	30.9
1955	158,675	51.5	11.6	6.3	30.6
1956	174,722	57.7	11.7	8.1	22.5
1957	189,684	60.2	11.4	7.6	20.8
1958	185,691	59.7	11.0	7.7	21.6
1959	177,695	61.2	10.7	7.6	20.5
1960	172,161	62.0	14.5	7.4	16.1
1961	161,128	63.9	14.8	8.2	13.1
1962	155,649	64.7	14.3	8.2	12.8
1963	158,887	64.9	14.8	8.0	12.3
1964	163,318	65.5	15.2	7.4	11.9
1965	170,533	64.4	16.4	6.7	12.5
1966	183,955	62.5	18.5	6.4	12.6
1967	207,511	58.9	21.6	6.0	13.5
1968[b]	207,517	55.5	22.9	5.4	16.2
1969	237,996	55.7	23.7	5.4	15.2
1970	269,626	56.5	21.3	5.1	17.1
1971	278,451	49.4	14.4[b]	3.9	32.3
1972	247,840	55.9	13.7	4.5	25.9
1973[b]	243,956	64.0	9.6	4.0	22.4
1974	280,965	63.8	9.9	3.6	22.7
1975	284,562	63.8	10.7	2.9	22.6
1976	265,647	62.2	11.1	2.5	24.2
1977	253,993	60.1	11.9	2.2	25.7
1978	263,660	60.1	12.1	2.0	25.8

Source: Department of Labor. Manpower Report of the President 1975, Table F-13. Washington: GPO, 1975; Department of Labor, Bureau of Apprenticeship Training, unpublished data.

a. At the beginning of the year.

b. Revision in reporting system introduced.

for the natural gas industry recently, the relevant Industrial Training Board (ITB) takes a prominent role in devising training, along with employers and the trade unions. In all other actions regarding apprenticeable occupations, however, British decisions are privately made by unions and employers. Norway, in its proposed new law, seeks to broaden the scope of apprenticeship beyond crafts and industry, but knowledgeable officials were doubtful that many occupations would be added.

In many countries no additions are made to apprenticeable occupations as a matter of principle because other forms of training are preferred to apprenticeship for occupations not already designated, especially in the manufacturing sector. This is stated frankly by AnCo,* the Irish training authority, and it is virtually policy in Australia, parts of Canada, Denmark, and Sweden. Opposition to expansion is particularly open in the English-speaking countries where the industrial relations context of apprenticeship decisions has been a limitation on the scope and activity of the central training councils and the constituent industry training boards, now present in almost all parts of the five other English-speaking countries. Seeing their function as one of providing an adequate quantity and quality of training, whatever its institutional form, these councils and boards have questioned the need or desirability of bringing new occupations under apprenticeship.

AnCO, which has imposed official regulation on its limited apprenticeship system, stated that it was unlikely that "training schemes based on apprenticeship would now be proposed, had this system not existed." A similar statement was made by Australian government officials. The Australian Confederation of Industry recently suggested that "perhaps apprenticeship should be seen as only one aspect of technical training...and not as a separate and distinct programme of vocational training." The Association particularly deplores that the training of individuals is determined against the background of the "adversary industrial relations environment in this country." The influential British weekly, The Economist, in its issue of May 24, 1980, declared that traditional apprenticeship should not be expanded, if the model was apprenticeship in the engineering and printing industries. These apprenticeships "are often simply a trade union restrictive practice for reserving jobs for 'skilled men' whose skill has been overtaken by technology."

In these countries some efforts are made to establish programs which circumvent the restrictive impact of the apprenticeship system on intake, occupational and skill demarcations, training content and duration. From this viewpoint, other countries might consider that the small size of the American apprenticeship system and its lack of substantial impact in most industries is a strength in the U.S. training and employment system.

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*An Chomhairle Oiliúna.

New Zealand administrative procedures are so complicated that additions, combinations, divisions and deletions of occupations are infrequently attempted (see Administration). Some Canadian provinces have added new occupations, as in Alberta in natural resource exploration. In Ontario province, there is a limited list of "compulsory certified" occupations which cannot be practiced without completion of an apprenticeship or an equivalent training; the list is difficult to change. There is another list of "voluntary certified" and "regulated" occupations to which additions can be made. A recent survey in the province on compulsory certification indicated that the sectors and trades in which the compulsory system exists, namely, the construction trades and services such as motor vehicle repair, wish to retain the certification and even expand it because it protects the public and is related to the job. Most authorities agree, however, that compulsory certified occupations would be harmful to industry as a whole where there is no public contact and job content does not always conform to skill training.

The decision whether training for specific occupations should be done through apprenticeship or education-based courses usually is influenced by tradition with support for the way training has been done in the past. As a British authority said, there is not a great deal of logic behind the choice. In many countries, school-based vocational education has been introduced as a competitive mode to existing apprenticeship because of dissatisfaction with apprenticeship training or because the number of apprenticeship places was insufficient. In Austria some 85 percent of all apprenticeable occupations can in principle be done either through apprenticeship or vocational education, but the actual division in methods leaves perhaps a 15 percent overlap. In Britain, computer occupations are taught by both methods, but in general the newer, technologically advanced occupations are not taught through apprenticeship. An oft-repeated maxim is that the more theoretical the skill training for an occupation, the more suited it is to the classroom as the primary site. A Swiss office manager who trained clerical and secretarial apprentices in his firm and also hired young women who had completed similar courses at fulltime private schools commented on the differences between the output of the two methods, finding virtues and deficiencies in each. He also stated that it was desirable to have both methods because they catered to different types of individuals and capacities. In general, Switzerland leans toward training in the firm. No new public vocational schools offering fulltime first level courses have been opened in 30-40 years and those that function are almost entirely in the French-speaking cantons.

In most countries vocational education has been gaining on apprenticeship in terms of the share of youth involved. In addition to choosing one method or the other or offering both, there is the alternative of combining them sequentially. Usually vocational education or a mix of general and vocational education precedes apprenticeship (or some form

of practical training in the workplace). This combination may indeed become the prevailing mode, replacing the choice of one or the other or dual offerings. Quite a while ago France and Belgium made policy decisions that almost all occupational skill training should take place in fulltime schools, but now they are beginning to see the need for an element of practical experience as well, more in the style of Scandinavian vocational education which increasingly accepts this formula for all vocational education.

Because of the insufficiency of apprenticeship places, the Netherlands has recently introduced a new program for early school-leavers with low academic achievement who otherwise would go straight to work. It is hoped that a combination of school and practical experience in the firm will give the 16-18 year-old participants the equivalent of apprenticeship. Sceptics are doubtful, however, about the appeal of such a program to school-weary youth, the willingness of employers to provide the practical training, and the acceptability of graduates of the school program compared to products of apprenticeship.

In Ottawa, Canada, apprentices in automobile repair mechanics can enter a full five year apprenticeship or a reduced 3 or 2 year apprenticeship after extra years of school including vocational courses. At a General Motors repair shop which employed all three types of apprentices, management, the apprentices and representatives of the provincial training and education ministries all agreed that the two or three year apprenticeship was much better than the five year program for all concerned. No dilution of training occurred under the shorter apprenticeship.

A general problem faced in these new combinations, especially in their first years, is the unwillingness of some employers to give full credit to the preceding vocational education or the basic introductory year and a reluctance to reduce the apprenticeship term accordingly. Still more difficult is the provision of adequate numbers of workplace positions for the practical experience component. In Denmark this is a limitation on the expansion of the EFG system in which the students are responsible for obtaining their own posts. To some extent, apprenticeship, practical experience, youth unemployment programs, and still other programs are all competing with one another for a limited number of places in firms. In Sweden a review of the entire subject has been undertaken because each program offers employers a different amount of subsidy.

TRENDS IN APPRENTICESHIP COMPOSITION

In several countries long-run absolute or relative declines in apprenticeship intake and numbers in specific occupations or industries are attributed to one or more of the following causes:

- A reduction in total employment in the industry.

- Deskilling of the industry with a rise in the proportion of semi-skilled workers and a decrease in the share of craftsmen or journeymen.

- A rise in the relative need for technicians and a decline in the use of craftsmen. (In some countries, for example, Germany, both categories are part of the apprenticeship system, but in Great Britain, training is done separately for each category.)

- A reduced interest in apprenticeship in technologically and organizationally advanced manufacturing industries because of the disruptions of production entailed in giving apprentices approved on-the-job training. Firms not large or rich enough to operate separate training schools and those changing to assembly line operations are most conspicuous in this regard. This trend is most significant in countries like Germany where mass production has become important and apprenticeship has been a major method of training skilled workers.

- Automation has severely affected jobs and apprenticeship training in banking, insurance and financial institutions in several countries.

- A shift to training in vocational schools for some, most or all of an occupation previously trained in part or wholly through apprenticeship. Commercial, clerical and administrative occupations are among those most affected.

- Compositional trends in several countries indicate that the number and share of apprentices in the printing trades or graphic arts has been declining in many countries and that food occupations and services of all types have rising numbers and shares.

IV. TRAINING ISSUES

ON-THE-JOB TRAINING

In most countries there has been a spread of certain features of training, most of which are now known in the U.S. to some degree. The chief points are: broad-based introductory training with common core elements, followed by specialization; training by stages or modules with an awarding of intermediate credentials; individually-paced learning; performance-based achievement to determine apprentice pay increases instead of time-based increments; continuous internal assessment instead of a single, final external examination; practical training in special centers; and block release for related instruction. The objectives of the most advanced training methods are to avoid premature choice of occupation and narrow specialization, to provide training uninterrupted by the demands of production and to offer an opportunity to advance in general education.

It is difficult to determine whether training in given occupations in the various countries provides identical breadth and level of skills, and how these compare with American apprenticeship. In France, for example, where most apprentices complete their training at around 18 years of age, they are not considered fully skilled and are expected to add to their skills on their later jobs. This implies a lower level of training than in the U.S. On the other hand, the director of a Swiss precision machinery company reported that his firm wished to establish a branch in the U.S. where it currently had a large volume of business with major corporations, but hesitated to do so because of a lack of American workers with the required skills, the absence of suitable training institutions, and doubt that prevailing worker attitudes and pride in workmanship would meet their exacting standards.

An authority on international apprenticeship in Geneva declared that printing trades apprenticeships in the U.S., Germany and Switzerland all produced workers with about the same skill levels, but the Americans would be older, have had more years of general education prior to entering apprenticeship, and also would have had a longer apprenticeship training. In effect, the American human capital investment would be considerably greater than the German or Swiss for comparable skill levels. Similar conditions were said to exist in other trades, but no direct evidence on the question was collected. The efforts of the European Communities to harmonize occupational definitions, training and qualifications extends to apprenticeship systems. In time the nine member countries may achieve enough standardization to permit easy mobility across national borders and acceptability of apprenticeship qualifications gained in one country in all other member countries. In other countries which have considerable immigration of skilled workers, particularly Australia and Canada, the process of equating the skill

qualifications of immigrants to those of native workers is complex even when apprenticeship has been the training method in both cases.

Another basic issue in apprenticeship, raised in a recent Canadian investigation into the legislative basis for apprenticeship in Ontario, is the relation between the actual requirements of jobs, the content of apprenticeship training, and the formal definition of the occupational skills. The Canadian view is that in the construction trades there is a high correlation between definitions of trades in the regulations and the on-the-job training, but less correlation between actual job requirements and the training or regulations. There seemed to be even less congruence in manufacturing where job requirements were said to be particularly divergent from occupational skill definitions and the prescribed training. The suggested remedy, which is echoed in other countries, is a frequent review and updating of training curricula to give recognition to technological and other changes within occupations.

At some sites the training of construction apprentices includes elements that are not likely to be used on jobs. Various reasons were offered for retention of such training in the curriculum. In Sweden this approach is rejected. Traditional training is reserved to a small number of apprentices who will later work on the restoration of old buildings. Those who are being trained for work on new buildings, which are constructed according to industrial principles and rarely shut down because of weather, receive only the training relevant to this type of construction. The Swedish trade unions have fully participated and supported the restructuring of training which has sharply limited traditional apprenticeship and favored vocational education mixed with practical experience.

Duration of Apprenticeship

The trend is toward a reduction in the duration of apprenticeship in order to attract and retain more apprentices, but also to improve training and make it more relevant to current needs. The most common recommendation in countries which have not yet reduced the standard duration of most apprenticeships to 3 years or less is to shorten the length of training. This approach is observed particularly in the English-speaking countries whose duration, while shorter than previously, is still longer than that in the continental European countries. However, calculations of the length of apprenticeship as elapsed years do not reflect the differences between countries and between apprenticeship occupations within a country in the number of hours per year devoted to training.

It has been found difficult to reduce the time element without also impairing training content. This aspect requires careful planning and control. Also, employers need reassurance that net training costs will not rise further; some of the programs described below in Government Financial Assistance deal with that issue.

In Britain where the ITBs have succeeded in reducing the duration of apprenticeship, which formerly had terms as long as 5 to 7 years, a case has been made against determining duration entirely by the minimum time needed to complete skill training. It is argued that the maturity, judgment, and experience provided by apprenticeship also are of value and that time is needed for these aspects. The same position was stated by the Swiss Federal government officials who are responsible for apprenticeship. A retired ILO expert on vocational training confirmed that this view was significant in some countries. The fixed duration of apprenticeship was compared to a cold storage process for youth, financed by socially responsible employers and necessary because compulsory general education ended so early.

Quality of Training

Some firms which sign apprenticeship contracts promise to provide a range of training of which they are incapable, while others simply regard training as secondary to production. In the Canadian Province of Ontario a survey revealed that some firms confine training to firm-specific skills in order to limit training costs. Though small firms are prominent among those which follow such practices, they are not the only offenders. Advance approval of firms as capable of training, as is required in many European countries, is a partial protection. Required examinations or assessments of progress of apprentices is another method of checking on firms' performance, since those whose apprentices have a high rate of failure will be suspected of inadequate training. No country has an adequate number of training inspectors, but strong trade union participation in apprenticeship often is effective as a policing agent.

In a more positive vein, the rotation of apprentices among firms and group training projects have been used. Suggestions have been made in Canada that apprentices' contracts should not be with the individual firm, but with the Joint Apprenticeship Committee or provincial authorities who would be responsible for providing the stipulated training. A basic vocational training year in school and off-the-job courses have been providing a broad-based, multi-occupational introduction for first year apprentices in some countries.

An additional approach is to remove some of the practical training from the workplace to special training centers. These centers may be technical schools, or may be created by ITBs or by associations of employers, or for individual industries they may serve a community and offer training in a number of occupations.

The German überbetrieblichen Ausbildungsstätten (inter-firm centers), the French CFA, and the British Engineering Industries Training Board (EITB) and Construction Industries Training Board (CITB) off-the-job practical training centers are examples of approaches to

the problem of small firms. The British ITB centers are industry-specific while the German centers also can be established by communities. Not only do such centers cope with the shortcomings of small firms, they also may reduce the first year apprentice dropout rate caused by immediate disappointment in the job. Centers established by the EITB and CITB in Britain provide new apprentices with off-the-job practical training in modern, safe and clean surroundings, using the latest machines and methods and well-trained fulltime instructors. A problem has arisen, in fact, for those employers whose apprentices are disappointed when they come to the firm's less modern and clean workplace after an initial off-the-job experience in a center. The Training Boards, however, consider that the centers must be leaders in machinery and methods, even if it displeases some employers.

A key issue in the enforcement of the quality of apprenticeship training is the record or Log Book of each apprentice's on-the-job training. Many countries have Log Books without proper supervision or enforcement. A recent survey in Ontario province, Canada indicated that Log Books were generally provided, but administration and enforcement were poor, revolving around regular recording of essential data, validation of the data, and follow-up, where data indicated training deficiencies or the desirability of modifying the training program. Since poor administration and enforcement of the Log Book impair the credibility of the apprenticeship system it is felt that a standard requirement of a Log Book is desirable only if it is certain that it can be properly administered.

In Finland, the individual apprentice is responsible for keeping a Qualification Record book in which he or she enters a complete record of each day's activities. These records are submitted to the local apprenticeship board which exists in every municipality and consists of representatives of employers, employees, the vocational school, the local government, and the national vocational training office. Not only are the quantity and quality of training checked and validated for each apprentice, but the employers' basic subsidy from the Government is withheld if training is inadequate. In the Netherlands, the training foundations (abour 35) perform similar functions through counsellors, each of whom serves about 175 apprentices.

Training the Instructors

In many of the continental European countries, the instructors who offer on-the-job apprenticeship training have had special courses in pedagogy besides having qualifications as skilled workers. In the artisan sector, the owner of the shop often must possess a Master Craftsman's license before the firm can be approved to hire apprentices. The number of apprentices per instructor or master is decided independently of regulations about the ratio of journeymen to apprentices. Efforts to improve the quality of instructors center on establishing

compulsory higher qualifying conditions and required additional formal preparation in pedagogical methods and interpersonal relationships. Governments offer incentives and provide voluntary or compulsory courses to upgrade instructors' qualifications. Germany has an ambitious certification program and has established Training Promotion Centers which offer short courses, distribute information, and foster the exchange of experience among instructors.

In most of the English-speaking countries, any skilled worker with journeyman status qualifies as an instructor and relatively few full-time instructors are employed. Most efforts to upgrade instruction are voluntary, assisted by the ITBs. Ireland's AnCO has courses for trainers as do British ITBs.

RELATED INSTRUCTION

As an inherent part of apprenticeship training, related or theoretical instruction usually is compulsory. In all industrialized market economy nations, except Italy, and most States in the United States, related instruction generally or always occurs during working hours. It is compensated either by the employer's wage payment, the most common situation, or by a government allowance to the apprentice, usually lower than the wage and often supplemented by the employer. In various countries government subsidies are paid to employers to partially reimburse them for the time spent at school. A general tendency to increase the proportion of time given to related instruction can be observed. If the allotted time had been one day a week, it is now likely to be 1 1/2 or 2 days a week, and the equivalent annual amount, if block release time is provided. The spread of the idea of block release, especially as an initial period in the first year or preapprenticeship period, is reducing or eliminating related instruction during apprenticeship.

In virtually every country the Government fully pays for the capital and operating costs of the schools or institutions in which related instruction is given. Usually such schools also offer full-time and parttime vocational education to others. In France, a separate institution, the CFA (centre de formation d'apprentissage), is used exclusively for apprentices and is partly financed by the apprenticeship tax on employers. In a few countries (for example, Britain), employers may be required to pay fees to the schools for related instruction for apprentices.

The countries which regard apprenticeship as a part of the educational system and in which a high proportion of early school leavers enter apprenticeship provide some general education, usually in the native language, mathematics and civics, as part of related instruction. In more and more countries, related instruction includes remedial education, especially in math. Sports activities or physical education

also may be offered. A typical Dutch apprentice school timetables 2 hours of general education, 6 hours of theoretical instruction and 1 hour of practical work. Forty percent of German related instruction consists of general education.

There has been some reaction against required related instruction in a few countries. In Luxembourg and Switzerland the finding that some apprentices with good practical abilities were being denied their certificates because they could not pass the required theoretical and general examinations led to the creation or proposal of new categories of practical apprenticeships which limit the theoretical component and qualify the successful completers of the practical portion as skilled workers, but leave them ineligible to become Masters or open their own shops. Some Dutch Training Foundations award certificates of practical proficiency to those who fail the theoretical exam.

In New Zealand employers' organizations have suggested that the general education component uses up valuable time which should rather be devoted to studies and practice related to the occupation. Also in New Zealand it has been suggested that all related instruction should be dropped as a compulsory requirement, in view of the poor performance and attitudes of present day apprentices. Due to the increased proportion of the age group remaining in fulltime education, apprenticeship now is the choice of a group of low academic achievers and it may become difficult to recruit enough apprentices unless the related instruction is made optional, according to authorities in New Zealand.

Another source of reduced need for related instruction is the combination of fulltime vocational education for one to three years with a shorter than normal apprenticeship. In such cases, very common in Scandinavia and spreading elsewhere, there may be little or no related instruction during the apprenticeship period.

The quality of the teaching staff offering the related instruction is an issue in some countries where the physical facilities for classes also are regarded as inferior to those provided fulltime vocational or academic students.

By far the most common problem concerning related instruction and one of the most frequently cited issues in apprenticeship is the difficulty of coordinating these courses with the practical training sequences in the workplace. Tensions between the various public authorities which have responsibility for the two aspects surely account for part of the trouble. In order to achieve better coordination of practical and theoretical training Luxembourg set up a new coordination commission in 1979. The Commission is composed of the Government Commissioner for vocational training, one representative of the Ministry of Education, representatives of directors of technical

secondary schools, and representatives of the various Chambers. In Germany, the efforts of the Federal Institute of Vocational Training (BIBB) also aid in the coordination. In the Netherlands, the Foundations which represent the social partners (management and labor) and operate apprenticeship have integrated the two curricula.

At the operating level, however, problems frequently stem from the inability of the schools to run courses which suit the precise needs and schedules of apprentices coming from many firms and multiple occupations. Uneconomically small classes and individualized instruction are required in many cases. Further difficulty arises in countries where many firms use apprentices as the flow of productive work dictates and not according to a planned training schedule, or, worse still, are able to offer only a part of the training.

One of the most promising approaches to this problem has been developed in the United States by the United Brotherhood of Carpenters and Joiners. As explained at a meeting of the Federal Committee on Apprenticeship in Washington on January 18, 1979, the practical and theoretical instruction are combined in individual learning packages which enable the apprentices to proceed at their own pace. The training can take place at the workplace, in training centers or in both. This model not only deserves extensive publicity in the United States for other occupations, but it is well worth the attention of other countries. Pending the time when most occupations can integrate the practical and theoretical, so that separate schools may no longer be needed except for general education, coordination of practical and theoretical instruction may continue to be a problem in many countries. It might best be improved by introducing one or more of the factors observed in the countries which are least dissatisfied with their performance in this area. The main elements are:

- unified direction of curricula for both.
- single, coordinated curricula for both.
- prominent roles for management and labor in drawing up both curricula.
- provision of practical training outside the firm for small or specialized companies.
- initial and later block release for related education.
- apprenticeship as a conclusion to one or more years of vocational education.
- supervision of firms' training by an industry, governmental or joint group.

- use of correspondence courses geared to the proper stage of practical training.

- unified provision of practical and theoretical instruction in schools.

NONCOMPLETION OF APPRENTICESHIP

In all countries dropout rates from apprenticeship include apprentices who voluntarily discontinue training. But in some countries these data also cover apprentices who are discharged for cause, either during the probation period or later, or who are dropped because the firm is economically unable to maintain the contract. Given the varying definitions, cross-national comparisons of completion or dropout rates must be approached cautiously. It does appear, however, that the English-speaking countries, apart from Ireland, have higher dropout rates than the other countries; U.S. rates appear to be among the highest. The ratio of completions in a given year to the total number of apprentices is available for eight countries for 1975 or 1976. Canada, Australia, New Zealand and the United States each had under 20 percent, while Austria had 26.5 percent, Finland 30.4 percent, Switzerland 32.4 percent and Germany 40.5 percent. Along with the variations in dropout rates, differences among countries in the length of apprenticeship and in recruitment trends influence these completion ratios.

Data on noncompletion of apprenticeship training collected in 1979 by the Machinery and Equipment Manufacturers' Association of Canada indicate wide geographic variation in identical trades and large differences among the separate trades found in these industries. The dropout rate over the course of the apprenticeship was 14.3 percent in Ontario, 22.1 percent in Quebec province, and 12.4 percent in Western Canada. Taking Canada as a whole, dropout rates ranged from 50 percent for maintenance mechanics down to 0 percent for electronic technicians, and averaged 14.3 percent. Welders and machinists had much higher dropout rates than patternmakers, electricians, tool and die makers, welder/fitters or fitter/millwrights. The wide dispersion around the average points to a need to collect and analyze apprenticeship dropout data on a more disaggregated basis than is usually done.

The highest dropout rates in all countries occur in the first three to six months. Most countries feel that early dropout rates could be reduced if employer selection processes were improved and if young people had better information, guidance and placement services before and during apprenticeship. However, the differences among countries in apprenticeship dropout rates appear to be attributable to a number of other factors which would not necessarily be affected by improved selection procedures and transition services.

A list of factors fostering low dropout rates follows, based on

observation and discussions in various countries, are listed without regard to their relative importance:

- Use of apprenticeship as a teenage initial skill training program.
- A three-year apprenticeship period or less.
- Introduction of modular training, frequent assessment or examinations, and individually-paced instruction.
- Off-the-job introductory practical training in special centers.
- Initial block release for related instruction.
- An examination system, with evidence of completion used in the determination of skilled job status and earnings.
- Relatively easy occupational mobility on completion.
- A substantial differential between the earnings of skilled workers and those of semi-skilled and unskilled workers in the same and other occupations.
- A large gap between the wage rates of apprentices and those of starting skilled workers.
- Security of employment under the apprenticeship contract.
- Supervision of the adequacy of training.
- Preapprenticeship courses.
- Provision for continuation of training under seasonal or cyclical fluctuations.
- An information and guidance service for potential and actual apprentices.

The countries with the higher dropout rates also have relatively high losses of skilled workers after apprenticeships are completed. In several countries, policies to reduce both types of loss are being formulated.

PREAPPRENTICESHIP

Two types of program are being called "preapprenticeship". In one, found in Australia and parts of Switzerland, fulltime school courses provide initial related instruction before an apprenticeship contract is secured. It is said that these courses not only improve the chances

of finding an apprenticeship employer but also shorten the apprenticeship period and reduce dropout rates. This type of program is in some respects similar to arrangements in which the initial period is spent in fulltime vocational schools, as in parts of Canada and in Germany, Norway and Finland. Moreover, since many countries shorten the required apprenticeship time for older apprentices who enter with higher than average educational qualifications, even if purely academic, such a provision also resembles preapprenticeship as defined in the first sense.

One of the most significant developments in apprenticeship has been the introduction of a basic year in school prior to the apprenticeship. Called Berufsgrundsbildungsjahr (BGJ) in Germany, this relatively new system, which can be considered to be a form of preapprenticeship, is meant to lead to a regular apprenticeship and to shorten its duration. The one year course, arranged as a fulltime school course or a cooperative arrangement between firms and schools, accounted for around 53,000 or 10 percent of first-year apprentices in 1978-79 and undoubtedly contributed to the availability of additional places for would-be apprentices. The BGJ provides a choice of 11 major occupational fields for introductory theoretical and practical lessons. Further specializations are available in 4 major fields and general education is also offered. The purpose is to widen choice, forestall premature occupational decisions, and broaden the educational experience and maturity. It is one way of raising the school-leaving age from 15 to 16. By 1985, it is expected that half of all first-year apprentices will enter the school or cooperative firm. Employers can benefit financially from the BGJ system by saving first year training costs if the introductory year prepares its pupils so that they are as productive as ordinary apprentices in the second year. Since employers have not been satisfied thus far that there is a year-for-year substitution, various changes in the system have been made to improve the BGJ and increase its acceptability.

The BGJ should be distinguished from an initial off-the-job training period such as Industrial Training Boards arrange in Great Britain and Ireland. These periods are not preapprenticeship, but are part of apprenticeship itself, since specific apprenticeship contracts usually are in place and a much narrower specialization is entered in the off-the-job training period than in the BGJ, albeit less specialized than would be the case if the apprentice entered the firm directly. The German BGJ also differs from the new Danish EFG system, although the content of the training and education is similar. The EFG is not intended to lead to apprenticeship, but rather to a period of work experience in a firm. Therefore, it is not preapprenticeship in any sense.

The other meaning of "preapprenticeship" coincides more closely with American usage and is found in many countries, particularly in France. It involves preparatory and often remedial courses in school to better qualify young people for entrance to apprenticeship. Such

programs exist as permanent parts of the training-education system for youth, but frequently they have been established temporarily under youth programs, stimulated by the recession and perhaps called by other names. When designated for minority and handicapped youth or low academic achievers, preapprenticeship programs are directed toward widening participation in apprenticeship, as in Germany. But such programs also may be designed to increase the pool of eligible candidates, especially where apprenticeship as a whole or in specific fields (such as the construction and engineering industries in Great Britain) draws from inadequate numbers or poorly prepared applicants.

V. ADMINISTRATION

The administration of apprenticeship in the continental European countries is most frequently lodged in the Ministry of Education at the national level, but Ministries of Trade and Industry (or Economics) and Ministries of Labor (or Employment) usually have their appointed and cooperative roles. In Switzerland, a subdivision of the Department of Finance, the Federal Institute for Industry, Crafts, and Labor (BIGA), has jurisdiction over the Federal law and its regulations. The English-speaking countries commonly vest authority in the Department of Labor at the Federal or State level, but some jurisdictions in Canada have moved primary control to the provincial Ministry of Education, often against the wishes of trade unions.

Three issues concerning the administration of apprenticeship are significant in the American context: Federal-State relationships; the administrative structures in the English-speaking countries; and employer-Government interactions.

Federal-State relationships are not easy in any Federal country, but they are less troublesome in those nations--for example, Austria, Germany, and Switzerland--in which the Federal Government has authority over vocational training and the States control education. The major problem then is the coordination of the practical training, directed federally, and the related instruction, provided separately by each State. Coordination among the States is fostered by organizations at the State and Federal level. In Germany, a Standing Conference of the State Education Ministers (KMK) voluntarily coordinates the educational policy of the States. In addition, the Federal Institute for Vocational Training (BIBB) promotes coordination at both levels. Since 1969, Germany has issued 80 new curricula which combine the practical and theoretical instruction for an occupation in one program. Switzerland, which delegates many functions to the cantons, has established organizations of the cantonal authorities, separately for the German-speaking and French-speaking cantons. In such countries, both employers' and workers' organizations concerned with apprenticeship tend to follow the same patterns of Federal-State organization. On the whole, the Federal form of Government is a minor administrative and programmatic complication in countries where the Federal Government has responsibility for administering the basis apprenticeship laws.

It is quite another matter in Australia and Canada which, like the United States, leave to the States most of the design and operation of apprenticeship legislation and administration. Each State has developed an independent and distinctive apprenticeship system, although there are only a few States in Australia and Canada, both of which have small, sparsely settled populations in a large land area. In these countries, the same two issues arise as in the United States. One is the acceptability of skilled workers' credentials from State to State and the

other is the reluctance of firms to establish apprenticeship programs in their branch plants in other States if different apprenticeship laws and regulations lead to separate programs and non-transferable staff.

To cope with the issue of the portability of credentials, Canada has established the inter-provincial certification or Red Seal program. After negotiations with all the provinces, the Federal office designates the occupations in which apprenticeship credentials awarded in any province are acceptable in all others. As of 1979, only a few (21) of all apprenticeable occupations were so accredited because it is a slow process to secure agreement among the provinces and some provinces have special occupational definitions or occupations not found on other provinces' lists. Not only does inter-provincial certification facilitate movement of skilled workers around Canada, but companies which establish branch plants in other provinces are easily able to introduce apprenticeship training in the Red Seal occupations.

Apart from this program, the Federal Government in Canada plays a negligible role. There is no Federal apprenticeship legislation and no organization among the provinces coordinates apprenticeship. Some Federal financial aid is offered, but one program that proceeded directly from a Federal manpower agency to employers, bypassing the provincial authorities, aroused local hostility.

Australia also has no Federal apprenticeship legislation, but its financial aid measures (see Government Financial Assistance) are so extensive that it exerts a strong influence on some aspects of the State programs. The National Training Council, a tri-partite advisory body created in 1971, consists of employers, trade unions, and State and Commonwealth representatives of the labor and technical education departments. Its mission is to improve all vocational training, including apprenticeship, and it brings a national viewpoint to the deliberations of the States as well as enabling the State authorities to meet regularly and share information. However, Australia has not developed a mechanism like Canada's to make apprenticeship credentials portable across States.

Even when Federal-State relations are not an issue, administrative structures in the English-speaking countries tend to be complex and cumbersome. The addition of training councils and industry training boards, as has occurred in nearly all of these countries, has served to further complicate the lines of authority and division of tasks. However useful these bodies may be for policy purposes, administratively they have added to an already cluttered scene. The British and New Zealand situations illustrate the point.

In the absence of legislation on apprenticeship, administration in Great Britain operates at several levels. Management and labor, often through Joint Councils, regulate the formal aspects of apprenticeship--its length, the age of entry, form of contract, rate of pay, requirements for related education, registration, etc. Training content and decisions on the number of apprentices required in each industry are the tasks of the Industry Training Boards (ITBs). At national government level, the Department of Employment, through the Manpower Services Commission and its Training Services Division, takes responsibility for approving training recommendations, providing financial and other support for ITB programs, taking a wider view of apprenticeship numbers, and trying to improve the administration of apprenticeship. The Department of Education and Science supervises the system of colleges of further education which offer related instruction, but local education authorities directly control the schools in which such instruction occurs.

In New Zealand so many bodies must approve proposed changes in any apprenticeship scheme covered by the Apprentices Act of 1948 that the Vocational Training Council, a national body, has issued a bulletin to its Industry Training Boards instructing them on the procedures to follow. Industry Training Boards must obtain approval of changes from the Vocational Training Council, the relevant tri-partite New Zealand Apprenticeship Committee, relevant Local Apprenticeship Committee, the Arbitration Court for Apprenticeship Orders, Trades Certification Board, Training Incentives Committee, Technical Directorate of the Department of Education, Department of Labor, Commissioner of Apprenticeship, and Technical Institutes Association. A new extended trade course (related instruction) takes at least a year to introduce. All in all, obstacles and delay attend the system.

Even ordinary operations in New Zealand are extremely cumbersome. According to a 1978 account, the Department of Labor supervises the execution of the apprenticeship conditions set by the Industrial Court (New Zealand's equivalent of a collective bargaining agreement). The Department of Education ensures that related instruction is provided locally. The 30,000 apprenticeship contracts are administered by 37 national and 257 local apprenticeship committees. The Trades Certification Board sets examination standards, mounts examinations nationally for 72 trades, sets and moderates 424 examination papers for 42,000 apprentices each year and awards certificates to those who pass. Related instruction, according to syllabuses set by the Trades Certification Board, are provided in 18 institutions. The Vocational Training Council establishes training needs and priorities, evaluates training schemes and recommends incentives through its 26 industry training boards. All bodies are tri-partite and generate subcommittees. A recent critical appraisal of apprenticeship administration by a high official who is responsible within the Department of Education for the provision of related instruction, concluded that the multiplicity of

overlapping committees and boards, the time consumed in meetings and the quantity and complexity of the regulations are in part responsible for reassessment by employers of the desirability of employing apprentices. He reported that the system is irksome, incomprehensible and impossible to operate, in the opinion of apprentices, parents, the public and employers. He urged that further proliferation of committees and boards should cease and the existing system should be rationalized by amalgamating and consolidating committees.

The frustration and annoyance of employers reported in New Zealand is present in many other countries. It is directed against the content of official regulations, red tape, and employers' obligation to report a variety of information. In Great Britain, employers resent both their ITBs and the Manpower Services Commission, while the ITBs complain that they are subject to interference by the MSC.

A somewhat different situation prevails in countries where apprenticeship employers are represented by Chambers or similar bodies. These organizations relieve their members of some of the day-to-day pressures by serving as administrative bodies and intermediaries between employers and the government. The Chambers also are political activists, and if a law relating to apprenticeship is passed over their opposition, they are likely to negotiate a delay in its introduction or a deliberately weak enforcement which overlooks noncompliance. Nevertheless, the director of training and planning of the Ford Motor Company in Cologne, Germany, said that employers increasingly complain about over-structured training curricula and excessive numbers of government rules, "do's" and "don'ts" which consume time and money.

VI. RECRUITMENT AND ENTRANCE

ACCESS TO APPRENTICESHIP

The priority given in American apprenticeship to what a Canadian group calls the "social equity issue" is not found elsewhere. Other countries, usually accept the "efficiency issue" as predominant, giving subsidiary attention to greater participation of females, minority groups, the physically and mentally handicapped, and low academic achievers. A recent survey in Ontario Province, Canada, indicated that many favored the provision of more opportunities for such groups and their encouragement through vocational counselling, preapprenticeship, promotional work with employers, and better workshop training in high schools. But there was little support for numerical goals or quotas or the adjustment of requirements to suit special needs.

With regard to minority groups there is little of interest to the U.S. in other countries' activities because of differences in the size and character of minority populations, the head start the U.S. has in this field, and the policy commitment at the Federal level. Somewhat more can be reported about female participation and the handicapped.

Female Participation

There is a fairly widespread desire to increase the share of women in apprenticeship, especially in countries where the proportion has been low. It is of interest that no country is engaged in encouraging males to enter traditionally female apprenticeship occupations, although Sweden has a more general educational program along these lines. The proportion of women in apprenticeship varies considerably. In 1978 2.2 percent of U.S. apprentices were female, against 16-19 percent in Great Britain, Denmark and Holland, 23 percent in France, 30 percent in Austria, over 35 percent in Italy, Germany and Switzerland, and 50 percent in Finland. On the other hand, Ireland had only 0.2 percent in 1977 and New Zealand's apprentice intake in the private sector in 1977-78 showed a female share of just 8.4 percent.

The proportion of females in apprenticeship reflects the character of national apprenticeship systems as much as the progress of countries in admitting women. Countries whose apprenticeship systems engage a high share of all youth and whose apprenticeable trades include a large number of female-intensive occupations tend to show higher proportions of females than other countries.

When the question shifts from the share of females in the total to the occupational distribution of male and female apprentices and specifically to the presence of women in the male-intensive occupations, all countries find that the sexes are sharply divided in regard to apprenticeship occupations. In Finland, for example, where women are

half of all apprentices, sex segregation by occupation is as highly developed as in countries with much smaller proportions of women. Several countries have recorded a marked increase in the proportion of females in apprenticeship in recent years without any visible shift of females into the typically male occupations. New Zealand is a case in point. In four years, from 1974 to 1978, the female share of private sector first-year apprentices rose from 4.8 percent to 8.4 percent. However, well over 80 percent of the females filled hairdressing apprenticeships in both years. In 1977-78 females were found in only 18 of the 72 apprenticeable trades in the private sector in New Zealand. Females had an even smaller role in public sector apprenticeships, constituting about 1 percent of the total number of apprentices in 1977 and 1978 and training in only 5 of the 27 apprenticeship trades.

If the policy objective is both to increase the participation of women and to raise the female share of the male intensive occupations, then the United States has a clear leadership in policy initiatives and accomplishments. Only a few countries have explicitly announced a policy goal of opening traditionally male apprenticeships to women and fewer still have made much progress in implementing such a goal. For example, Britain has such a program for technician training in the Engineering Industry.

Germany's recent efforts to bring girls into the type of apprenticeships usually filled overwhelmingly by boys constitute an important exception to the generalizations above. The German interest was sparked not only by egalitarian and feminist pressures but also by recognition that during recent years of overall growth in apprenticeship places, the demand for apprentices in the female occupations had not increased at the same pace as in the male-intensive occupations. This resulted in a disproportionate share of girls among all of the young people who unsuccessfully sought apprenticeships; girls constituted two-thirds of the disappointed group although they held just 35 percent of the apprenticeships. Furthermore, since the longer-run prospects for earnings and career progress in the female-intensive occupations are less favorable than in the male occupations, another reason was found to urge girls to seek the male training occupations.

It was discovered that the proportion of German girls in seven typically male apprenticeship occupations did rise slightly from 1975 to 1978; on average, the female proportion in these occupations increased from 0.3 percent to 0.9 percent of the total. Of these occupations the greatest female penetration occurred in apprenticeship training for

gas station attendant*; the girls' share had been 3.8 percent in 1975 and it rose to almost 7 percent by 1978. On the other hand, girls made little progress in obtaining apprenticeships in motor vehicle mechanics, starting at 0.1 percent in 1975 and rising only to 0.2 percent in 1978. Overall, the small participation of girls in some of the most popular and rewarding industrial occupations was a cause of concern. Chancellor Schmidt, making a special plea to parents, declared that apprenticeship should become as much a matter of course for girls as for boys.

Pilot projects to introduce girls to male occupations were launched in September 1978. They had been drawn up, and would be monitored and evaluated by the Federal Institute for Vocational Training (BIBB), the central policy, advisory, technical and research body, established in its present form in 1976. The BIBB carefully researched the subject in advance and designed the pilot projects so that they would be free of the common objections and would not make compromises on training content or principles. Employers' organizations and trade unions, as members of the BIBB governing board, gave full approval to the project. The Minister of Education stated that the purpose of the experimental projects was to demonstrate conclusively that apprenticeship training of girls in so-called boys' occupations not only could be accomplished without difficulty but actually could have positive benefits. Moreover, the projects would show that in the future many more young women could be expected to be interested in pursuing technical occupations in industry. The Minister hoped that in about five years the concept of sex-stereotyped apprenticeship occupations would be outmoded. However, no specific goals or dates were set.

Financial support for the model programs is provided by the Federal Ministry of Education and Science which has allocated DM7 million to cover the extra costs of participating firms and training centers. Initially three industrial firms, including the Audi automobile company, and two inter-firm training centers were chosen to receive 130 girls into 15 typically male industrial-technical apprenticeship occupations. For the second year, in 1979-80, 10 experimental or model programs involving about 1000 young women were established. Each program will carry the participants through the entire apprenticeship period of two to four years, according to the training rules for each occupation.

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*Apprenticeship training for this occupation goes far beyond the tasks we associate with this job. The training is likely to include instruction in how motor vehicles are constructed and operated as well as how to carry on all of the business functions associated with owning and operating a filling station.

After the first year a preliminary evaluation was made of the five model programs. The main conclusions were that the girls were very interested and highly motivated and performed as well as boys in both the practical and theoretical areas. Their dropout rate was lower than that of boys. On the testimony of the training instructors, the presence of the girls established a better work atmosphere than in an all-male training group. The training instructors also found none of the psychological or skill training problems that conventional wisdom had foretold and none were anticipated with an expansion of numbers. Those parents who had initial skepticism about such programs for their daughters now were less doubtful. In the towns where the model programs had been launched, there had been a spontaneous increase in requests by girl school-leavers for apprenticeship places in the industrial-technical occupations. In general, the first year of the programs had fulfilled all expectations and encouraged further efforts.

The timing of the German effort is felicitous since an impending decline in the number of potential apprentices for demographic and educational attainment reasons will make employers more receptive to females in typically male occupations. It will be of interest to watch German progress in this area inasmuch as their approach and methods diverge sharply from the American. Whether a government-initiated and financed pilot program will permanently increase the overall participation rates of German girls in male occupations remains uncertain. Government financial subsidies may not be continued if and when the pilot programs end, inasmuch as the findings point to no additional employer costs beyond initial changes in some physical facilities.

Some aspects of the German approach offer lessons for the United States. Their prior research and planning by a central group of experts, the careful monitoring of the pilot programs, the widespread dissemination of results, and the availability of technical assistance will reduce the problems of those firms which decide to expand female recruitment and will minimize the cases where inappropriate or mistaken approaches or outright abuse weaken the entire program.

Handicapped

Those countries on the continent whose apprenticeship systems cover a wide range of occupations and skill-levels (including many two-year apprenticeships) are in a better position than the English-speaking countries to make special arrangements for the entrance of physically, mentally, and socially handicapped youth and low academic achievers. Two approaches are used. Special preparatory classes are conducted, sometimes as preapprenticeship. More important are the deliberate modifications of entry requirements, training tasks, time allotted to each training aspect, ratio of apprentices to trainers and other factors in the workplace and school which facilitate the completion by these groups. Intermediate credentials are provided for those who cannot go the whole distance.

The German authorities have recently introduced programs for the physically, mentally, and socially handicapped, with the cooperation of the Chambers of employers which have day-to-day responsibility for the operations of apprenticeship. Relaxation of standards and modification of various aspects of apprenticeship are joined to special preparatory measures to increase the chances of pupils leaving the Sonderschule (special schools). The ultimate objectives, still to be realized, are that the access of the handicapped to apprenticeship will be as good as that of school-leavers from regular schools and that their performance during apprenticeship training and their job placement afterwards will also be equal to that of ordinary entrants. The size and diversity of the German apprenticeship system facilitates the adoption of this program, but there also is evidence of innovative planning to stimulate and assist the participating private firms.

INFORMATION, GUIDANCE, AND PLACEMENT SERVICES

It appears that the larger the role of apprenticeship as an activity for young people leaving school, the more highly developed and specialized are the public information, guidance, and placement services dealing with apprenticeship. In Austria, Germany and Switzerland these services for youth are heavily directed toward potential apprentices. Other countries, especially the English-speaking countries, either criticize the transition services available to all youth or single out the portion dealing with potential apprentices as particularly inadequate.

A critical attitude toward the transition services is particularly prevalent among employers in industries which have difficulty in recruiting a sufficient number or the desired quality of apprentices. In Britain, for example, individual industries, particularly the construction and engineering industries, have established Careers Information Units to attempt to reach potential apprentices. Implicitly criticizing the national Careers Service which is responsible for providing the transition services to all young people in school, these newly created industry efforts do not claim that they help young people to choose among all alternatives. Rather they are recruiting agents for particular occupations and industries; because the regular services are regarded as inadequate, parallel services have been established. In Austria, Germany, or Switzerland, such industry activities would be conducted carefully and would neither compete with nor duplicate the efforts of the main public agencies designated to deal with all young people.

The comprehensive services provided by Germany exemplify the programs in countries with a relatively large intake of apprentices. By German law, the Federal government has sole responsibility for occupational information, guidance and placement. This limits the scope both for private organizations and government agencies at subnational level. The Federal employment service (ES) with its 9

regional and 146 local offices is responsible for carrying out the actual contacts with young people, but a large headquarters staff develops informational materials. The program begins with group information and guidance activities and is followed by individual guidance to pupils and parents, which all young people in the last grades of school can receive; it includes psychological and medical services where needed. School-leavers and others proceed either to the specialized apprenticeship or to the regular placement service. The apprenticeship placement service is so specialized that young people registered as seeking an apprenticeship are not counted as unemployed unless they have simultaneously registered at the regular employment service for an ordinary job. After young people list their occupational choices for an apprenticeship at the special apprentice placement office, they are given leads to firms. On request, the office will give its opinion about the suitability of a pending contract to the firm and the young person. Placement pools are arranged when potential trainees cannot be placed locally or there is a lack of suitable candidates in the area; several employment service offices combine their activities and arrange placements even beyond the area covered by one of the nine regional offices.

Young people make extensive use of these government services. In the years 1973-78, between 55 and 65 percent of all current school-leavers aged 15-19 consulted the E.S. for vocational guidance, not necessarily in regard to apprenticeships. The E.S. also has a large role in regard to placement in apprenticeships, though the E.S. placement service accounts for a smaller share than its monopoly position suggests. While employers, under government pressure, have notified larger proportions of their apprenticeship vacancies to the E.S. since the passage of the 1976 law on balancing supply and demand in apprenticeship, in 1978-79 employers notified the E.S. of no more than two-thirds of the 677,000 apprenticeship places; moreover, some of the 444,753 places notified by employers proved not to be available or were notified so late that the E.S. could not send suitable candidates.

Nor did most young people obtain apprenticeships through the employment service in 1978-79. The majority obtained their places through direct approaches to firms, as in previous years. Although about 70 percent of all those seeking an apprenticeship registered at the employment service in 1978-79, a substantial portion of the 70 percent either secured their places by other means or entered alternative activities, such as fulltime school. Over the years since 1966-67, the proportion of notified apprenticeship places which the E.S. filled directly has been declining; the placement rate was 63.7 percent in 1966-67, gradually dropping to 53.6 percent in 1977-78. The remainder, rising in each year, consisted of notified places filled without direct action of the E.S., but which employers or young people reported to the E.S. Another group of places which had been notified to the E.S. either were unfilled or were filled by other means and not reported.

Only 37,400 places which had been notified to the E.S. remained on its books as unfilled in September 1979 and only 20,200 unsatisfied applicants for apprenticeship were still listed. This is a creditable record. Many new apprentices did not, however, obtain their first choice of occupation because the wishes of apprentices did not match employers' offerings. Apprentices' choices tend to be concentrated on too few popular occupations in spite of their having received guidance and information. The German experience is similar to that in Austria and Switzerland and stands as a reminder of the limits of the coverage and effectiveness of transition services, even when they are well-developed and financed. While a lack of such transition services has been identified as a cause of high dropout rates, it should be borne in mind that the low dropout rates in such countries as Germany, Austria, and Switzerland are not entirely due to the availability of transition services (see section on Noncompletion).

The countries whose experience has been reported so far have located the transition services in schools and directed them to school-leavers because that is the age-pattern of apprenticeship recruitment. But in the U.S. and Canada, where the age of entry is more advanced and relatively few new apprentices come directly from high school, a different type and location of information, guidance and placement services might be required, unless there is a policy decision to reduce the age of entry. In Canada in 1976-77, 53.7 percent of apprentices were 20-24 years old and only 7.7 percent were under 20 years; almost 38 percent were 25-44 and about 1 percent were 45 or over. The Canadian government and some of the provinces are trying to discover the causes of this age distribution with a view to reducing the age of entry. Young people as well as employers and trade unions are being surveyed, but the results are not yet available.

A detailed age distribution of American and Canadian apprentices belonging to the International Association of Machinists was made in 1979; Americans accounted for almost 90 percent of the total. Over half of the machinist apprentices (58.5 percent) were 25-40 years of age and another 14.9 percent were over 40 years old. Teenagers, who account for almost 100 percent in other countries, constituted a mere 1.3 percent of the machinist apprentices; young adults, 20-24 years old, made up only 25.3 percent of the total. To the extent that further studies of other occupations show similar age distributions, questions must be raised not only about the kinds of information and guidance services needed by American apprentices, but also about the sources of recruitment and whether apprenticeship is being used as a skill upgrading program for adults rather than as an initial skill training program.

It is widely believed in Canada that new high school graduates have little interest in apprenticeship or skilled blue collar jobs and that

the educational system and faulty transition services play an important part in this attitude. A Canadian survey of views on apprenticeship in Ontario Province in 1979 revealed that a majority of the respondents, chosen to represent all interested parties, believed that vocational information and guidance concerning apprenticeship was inadequate and had many adverse effects. Among the unfavorable consequences were a lack of awareness and understanding by youth of apprenticeship opportunities, the nature of various industries and trades, and their own aptitudes; an inability of employers to attract high quality candidates; a mismatch between employers and apprentices; increased incidence of dropouts; and reduced quality and effectiveness of training.

Others stressed that employers and trade unions follow selection policies which favor older youth with a few years of work experience or prime age workers for whom apprenticeship is a skill-upgrading course. A change of sttitude toward high school graduates would only follow from a different perception of the characteristics of these youth, not from giving the young people more information. However, improvement in information, guidance, and placement in the Canadian schools has widespread approval among supporters of apprenticeship and is endorsed even by those who doubt its efficacy if it is not accompanied by other measures. Similar support for more and better transition services can be found in many countries.

Counselling services to those in apprenticeship training are available in several countries. These officials help apprentices to adjust to training requirements, deal with problems on the job, check conformance with training and safety regulations, and, in general, try to reduce the number of early dropouts. The Netherlands, Denmark and Luxembourg are among the countries which have apparently effective services. In some countries which provide such counselors, it is a complaint that their number is insufficient and that they have excessive, inappropriate, or conflicting duties.

VII. FINANCIAL ASPECTS

EMPLOYERS' TRAINING COSTS

Inquiries about the costs of apprenticeship to employers revealed that the state of the art was no more satisfactory than it had been several years earlier. Some new estimates have been made, but in most of the countries there is no data on employers' costs and little hope of obtaining such information in the near future. Even more daunting was the discovery that some of the most promising efforts had been challenged or discontinued. The German Institute for Vocational Training (BIBB) research office in Berlin halted a project to update the detailed, published findings of the Edding Commission on employers' costs made in the early 1970s. After a close examination of new reports on costs submitted by employers, the BIBB researchers were convinced that self-reporting provided neither reliable nor uniform types of information. Since no other method of obtaining such internal information seemed feasible because of costs and a lack of sufficient personnel, the BIBB halted the study in 1979. At the same time, BIBB researchers, knowing that the data on which the Edding Commission had based its study in 1972 had also been collected through employer self-reporting, were now inclined to question the reliability of the earlier report which had acquired the status of a landmark study.

Another disappointment was the discontinuation of a projected series of cost studies in Ontario Province, Canada, which the provincial Ministry had contracted to a private management consulting firm. The first study was on machinists and it had revealed that few generalizations could be made about employers' costs as a whole; each firm had its own profile. Whether due to this finding or to other factors, an official decision was made to conduct no further studies of other industries.

A different situation on the study of costs was found in Switzerland. The Employers Association for the Machinery and Machine Tools Industries (ASM) in Zurich had conducted its own study of the costs of apprenticeship among member firms. When the Association looked at the results, which showed substantial training costs, it decided to suppress the study, lest members reduce their apprenticeship intake!

Cost estimates generally assume that the pay-off must occur during the apprenticeship, but the theoretical basis for this has not been established. It can be argued that the returns to training go on beyond the apprenticeship period. Even if some apprentices leave the training firm at the end of their training, the firm may be able to hire other apprentices whose training occurred outside the hiring firm. This issue requires further discussion.

Another uncertain element in the calculation of costs is the propor-

tion of an apprentice's time in the workplace which is devoted to training and the proportion which is devoted to direct production or activities unrelated to training. It is a frequent complaint that an apprentice's time in the workplace, especially in small firms, is largely devoted to production work and that training is a by-product. Information on this point is scarce. A German survey indicated that three-fourths of all apprentices did some production work and that half of this group devoted three or more weeks of every month to direct production. Ford Motor Co. apprentices in Germany are said to spend one-third of their time on production work. A Swiss textile machinery manufacturing firm reports that production work occupies one-third of the time of first and second year apprentices and two-thirds of the time of third and fourth year apprentices. It is clear that data for individual firms are of limited significance because of variations from firm to firm. Inter-country comparisons also are limited.

The concepts, definitions, and measurement methods in the estimation of employer costs are still to be worked out and agreed upon. Collection of actual data from firms on a uniform basis constitutes a further formidable obstacle. Whatever the state of knowledge about employers' actual training costs, there has been a growth in the belief that a sharing of costs among employers is required to keep apprenticeship alive. In countries which have no national scheme, various industries have established funds, often through collective bargaining agreements. Some countries would like to generalize such particular arrangements to all industries by introducing training boards, as has been done in Great Britain, New Zealand and Ireland, or by imposing an apprenticeship tax, as in France.

It seems clear that policies to grant governmental financial assistance will continue to be formulated without precise cost information, but will be approved because of the general belief that employers who train have more costs than those who do not and that training for some occupations is more costly than for others. It also appears that some firms have no net training costs or actually make a profit from apprenticeship during the training years, implying a subsidy of the employer by the apprentice. The policy ramifications of this finding are important, but more and improved cost information is needed for specific types of apprenticeships in individual countries before distinctions can be made among apprenticeship training firms.

GOVERNMENTAL FINANCIAL ASSISTANCE*

A major development in a large number of countries has been the entry or increased participation of governments in the financing of apprenticeship costs. Not only national governments, but also the European Communities, through their Social Fund, as well as State governments (in Federal countries) are engaged in providing subsidies on a temporary or permanent basis. These payments are made to a variety of individuals and groups, but individual firms and apprentices are the leading recipients.

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*See Appendix B for U.S. exchange rates for foreign currencies.

The forms of government subsidies are diverse. They include partial or full tax deductions, tax credits, tax exemptions and rebates, direct grants and assumption of all or part of the capital and operating costs of training centers and schools. Public financial assistance may be directed toward all apprentices in training, all new apprentices, or only the additional intake of apprentices beyond a normal level or previous number.

The rationale for governmental financial assistance is complex and differs among countries. In part, it is a desire to offset the observed cyclical variation in apprenticeship intake so that the number of apprentices will be maintained or increased in recessions even though employment falls. The prevention of cyclical interruptions in the training of individual apprentices is a related goal. Some countries have made apprenticeship subsidies a direct part of their youth unemployment programs. In this case, the absorption of unemployed young people has been a more important goal than the smoothing of cyclical fluctuations in apprenticeship intake, but both types of program are products of recession. It is of interest that the recent report of the Carnegie Council on Policy Studies in Higher Education, Giving Youth a Better Chance, strongly favors subsidies to American employers who expand apprenticeship opportunities but recommends against a general program of wage subsidies for the employment of youth. On the other hand, a recent survey in the Canadian province of Ontario among persons involved or concerned with apprenticeship developed a majority view that the apprenticeship system was not a suitable vehicle for dealing with youth unemployment.

A second general reason given for government financial support is that firms train for their own needs and cannot train adequately for the needs of a whole industry or the economy. In particular, they cannot foresee future skill needs. Government therefore should provide incentives so that employers will raise their overall training levels, in accordance with national and industry economic goals and needs. A related line of argument is that training produces economic and social benefits for society as well as for the apprentices and the firms that employ them. However, analysts believe that the case for social benefits from specific skill training have not been demonstrated and that an analogy with the social returns from general education should not be drawn.

The geographical maldistribution of apprenticeship opportunities, both in the quantity of openings and variety of training occupations, also is a motivation for government subsidy. Austria subsidizes qualified enterprises, located in areas of the country where opportunities

are scarce, if they train apprentices beyond their own immediate needs and also firms in other areas which accept apprentices from places with few apprenticeship openings. Germany builds youth hostels to facilitate geographic movement of apprentices.

Another motive for subsidizing various aspects of apprenticeship is to insure that small firms can train and that improvements in the quality of training do not falter because employers decline to make the necessary expenditures. For example, a decision to reduce the duration of apprenticeship or the time spent on the job without any sacrifice in the quality of the training might be accompanied by an assumption by government of some of the costs of rearranging instruction, especially if employers have to be induced to make a change in the duration of apprenticeship.

It is debatable whether government assistance should be based on the argument that some firms do not train because they fear that non-training firms will bid apprentices away with higher wage rates at the end of the training period. This situation is generally viewed as making a case for a sharing of training costs within the private sector through a levy-grant system, rather than providing a basis for public aid. It also appears that poaching of apprentices is not the only reason for inadequate intake. Among the other factors are: the inability of some firms to offer satisfactory training; the employment of skilled workers in industries other than those that train them; and the voluntary departure of skilled workers to higher paid work outside their skill area.

Employer perceptions that training costs are rising constitute a basis for requests that government should finance part of the costs of apprenticeship, especially if it is public policy to increase apprenticeship intake. The main factors identified as causing rising costs are reduced amounts of time spent at work and in direct production, increased apprenticeship pay relative to the pay of other workers, strengthened youth labor protective legislation, prolonged compulsory education which raises the entry age and wage of apprentices, higher costs for training instructors because of elevated qualifications, briefer apprenticeships, higher turnover rates of apprentices during and at the end of apprenticeship, higher social security costs, longer vacations, and more stringent minimum standards for premises, equipment and safety.

Since government action is the source of some of the increased cost, it seems natural to ask government to carry part of the burden. However, many employers and their organizations in Switzerland, Germany and Austria are so fearful that government money will be followed by government control that they decline to seek direct subsidies, preferring to rely on industry funds. Somewhat less resistance is shown to government funding of group or industry training centers. However,

a Swiss employers' association rejected even this type of government participation on the ground that any additional public expenditure would be recouped by added taxes on business. Swiss Federal authorities foresaw no Federal contribution, but thought the cantons might offer limited financial support.

An argument frequently offered to justify increased subsidization of apprenticeship is that the public expenditure on those in fulltime education is much larger per capita than it is on young people in apprenticeship which is also a form of education. In effect, employers have been carrying part of the expenditure that might otherwise be charged to the public purse. In countries which pay grants or allowances to fulltime students it has been proposed that apprentices should receive a similar sum from the government and particularly that employers should not have to pay wages to apprentices for time spent away from the job on related instruction or other training. A case for subsidizing apprenticeship employers also arises in countries which pay employers to give on-the-job training and work experience to full-time vocational education students.

The British Federation of Building Trades Employers, in its review of the Employment and Training Act of 1973, recommended that the cost of proposed initial off-the-job integrated further education and training for the building crafts should be funded by government, but with industry retaining overall control of the training. Two grounds were given: equity in treatment between those in higher education and those in apprenticeship and the heavy financial burden on employers of apprenticeship training. In requesting such public funding of the first off-the-job year, British employers were seeking something already in place in most of the northern European countries, although in these countries such public first-year training usually is given to young people with the status of students.

The use of government subsidies to make it possible for youth from low income families to enter apprenticeship is supported in countries where similar means-tested arrangements exist for students and where apprentice earnings are low relative to the earnings of young unskilled workers. Austria and Germany have such programs. Family allowances are paid for apprentices. Other countries support young people who have to live away from home or travel substantial distances for part of their training.

The specific types of support available in various countries are best conveyed by citing the array of programs in individual countries. Appendix B provides exchange rates in $U.S. for the monetary units of countries described below.

Australia

Australia is of interest to the U.S. both as a Federal country in which apprenticeship legislation and administration are a State responsibility and as a country whose apprenticeship system, deriving from the British tradition, is relatively familiar. Financial support to apprenticeship by the Commonwealth of Australia proceeds from its function of encouraging improvement in the quantity and quality of apprenticeship training and its acceptance of the principle that the financing of the technical education of apprentices is as much a responsibility of the national government as is the support of students in professional and subprofessional occupations.

Having found that an earlier program, the National Apprenticeship Assistance Scheme (NAAS), was not effective, in part because subsidies were for the first year only and were taxable, a new program called CRAFT (Commonwealth Rebate for Apprentice Full-time Training) was initiated in January 1977, after consultation with the States. Its purposes were to offset the wage costs for released time for related education and to encourage increased apprenticeship intake by achieving earlier productivity of apprentices. Systematic, approved fulltime off-the-job training and the completion of required technical education as early as possible in the apprenticeship or, in part, prior to starting the apprenticeship were the means selected to achieve earlier productivity.

CRAFT tax-free, indexed rebates to employers cover two programs: technical education courses (required related instruction) during any year of apprenticeship and off-the-job training during the first three years of apprenticeship. For related instruction release, subsidies recently were raised and changed from a flat rate to a range according to industry and the level of apprenticeship wages, thus giving employers a higher percentage of the apprentice wage. An employer is to be reimbursed in 1980 at A$14-$19 per day for each apprentice released during working hours to attend the first two stages of an approved basic trade course of technical education in one of the "proclaimed trades", an apprenticeable occupation as defined by the industrial court awards, Australia's industrial relations system. The rate rises to A$18-$24 per day (for the last three stages of the course) if completed in the second through fourth years of apprenticeship. Half-days of released time can be added up in computing amounts due to employers.

Rebates are also payable for the travel time of apprentices who spend one half or more of a working day traveling in either direction in order to attend such a block-release course. A new provision gives employers a 40 percent premium on the technical education rebate if they hire an apprentice who has completed an approved preemployment training course; such a course reduces the normal period of apprenticeship by a minimum of six months. In 1978-79, the expenditure on the technical education program was A$28.4 million and 56,500 apprentices were subsidized.

The off-the-job training rebate applies to approved fulltime instruction by a qualified instructor away from the production area. Approved training programs can be held in an area separate from production on the employer's premises or elsewhere. An employer who releases an apprentice to attend such courses in 1980 could receive a subsidy of A$14-$19 per day for up to 260 days of which no more than 130 could be in the second and third years combined; these rates were a considerable increase on the previous flat daily rate of A$6.50.

Some indication of the spread of subsidized off-the-job training is provided by official figures on the number of apprentice days approved for CRAFT rebate. In 1975/76, it was 775,480 days. After dropping in 1976/77 and rising in 1977/78, but not to the 1975/76 level, the number of days reached 1,180,209 in 1978/79, indicating good acceptance of the new system. The higher rates to be paid from 1980 will probably further increase the total. In addition to rebates for releasing individual apprentices for off-the-job training, employers can qualify to have some or all costs reimbursed by serving as host trainers who receive another employer's apprentices for off-the-job training, and by forming a group cooperative of small firms for training purposes.

A new marginal program offers A$1,000 to employers for each additional apprentice hired in a proclaimed trade between December 1, 1979 and June 30, 1980, above the number of new apprentices hired in the corresponding period a year earlier. The cash rebate is payable on condition that no reduction is made in the number of previously employed apprentices in the second and later years except through the normal completion of the indenture. Apprentices already subsidized under various Commonwealth programs are excluded as are trainee apprentices in New South Wales because they are not indentured. CRAFT also provides taxable weekly living allowances to apprentices of A$22 a week for first year and A$9 a week for second year apprentices who must leave home in order to obtain or remain in an apprenticeship.

Several additional Commonwealth programs, drawn up in consultation with the States, provide financial support to apprenticeship under NEAT (National Employment and Training). These are preapprenticeship courses; accelerated training; group partial training in Commonwealth establishments; apprentice training advisers; and the Special Assistance Program. Through preapprenticeship courses, carefully chosen potential apprentices are able to gain exemption from one or more of the four stages of required technical education under apprenticeships, making them more attractive to employers. Some 2,000 young people in all the States took the courses in 1977 at a public cost of almost A$3 million; initial experience in obtaining regular apprenticeships was fairly good. Accelerated technical training, started in 1977 in the State of Victoria, is designed to complete the technical education, normally spread over three years, within the first two years of apprenticeship. In the first

year about 1,200 entering apprentices were in this program which makes them productive earlier and saves their employers some wage costs on released time, inasmuch as the government's rebate amount remains fixed while the apprentice's wage rate goes up in successive years. The 1977 public expenditure on this program was about A$2.5 million.

Schemes to utilize spare training capacity in Commonwealth Government departments at first provided four years of government-financed apprenticeship for a small number of young people who could not find places in industry but who were expected to find private jobs after their training. This program was replaced by one-year of introductory training in government departments for apprentices who are sponsored by private employers; the latter then take over the remainder of the training. In 1978, 300 trainees were enrolled and the cost was projected at A$2 million.

The Commonwealth also has a Special Assistance Program (SAP) to aid apprentices whose employment is in jeopardy as a result of various types of business problems in the firm. The SAP gives financial aid to the firm holding the apprenticeship contract or, in more extreme cases, to another firm which agrees to take over the apprentice. This measure will continue as long as it is needed. Due to improved business conditions, 736 apprentices benefitted from this program in November 1979, compared to 884 in November 1978 and 1,182 in November 1977. Expenditure for 1979-80 is estimated at A$2 million. Finally, assistance has been given to the States to employ training advisers who act as liaison officers between the technical colleges and employers; this subsidy, due to expire in 1978-79, was intended to stimulate the appointment of a given number of advisers whose salaries would thereafter be paid by the States.

New South Wales, the most populous of the Australian States, also has a program called Country Apprentices Training Assistance Scheme, which provides reimbursement of travel costs and partial coverage of boarding costs for apprentices residing in small or isolated communities, who could not reasonably attend block release technical education courses unless they lived away from home. Such State programs complement the Commonwealth program.

The Australian government is currently conducting a special review of the effectiveness of the CRAFT program. A preliminary finding, favorable to CRAFT, is that there has been an upward trend in overall apprenticeship intake in the face of declines in employment in some of the sectors which are important in apprenticeship. While it is difficult to draw causal implications from these intake numbers alone, it also is significant that the New South Wales Employers' Federation believes that the government's financial incentives account for the 10 percent increase in intake from 1977 to 1978.

New Zealand

Somewhat similar to Australia in that it has chosen off-the-job instruction as the main area for government subsidy, New Zealand uses its incentives to employers to foster block release courses and pays no subsidies for day release or other short periods. New Zealand also uses subsidies to encourage the establishment of preapprenticeship courses for aboriginal rural youth and as one part of its youth unemployment program. Apprentice wages are tax deductible.

Employers who send their apprentices to approved block release courses can receive, after bearing full cost of the first three weeks, 60 percent of the apprentices' wage for no more than 15 weeks during the first year of apprenticeship. In the second and third years the reimbursement is reduced to 50 and 40 percent respectively for no more than 15 weeks in each year, with the employer paying full wages during the first three weeks.

Although the principle of block release, or extended trade training, as it is called, has been accepted for all apprenticeship, governmental budgetary constraints have prevented the system from spreading to all industries. In 1976 6,690 apprentices attended extended trade training courses and 13,053 attended other courses, mainly of 9 weeks duration. Using training costs in carpentry, it was estimated that government expenditure would have been N.Z.$7.6 million more if these 13,053 apprentices had been given extended trade training.

Employers generally believe that the government subsidy should cover the full cost of wages during the entire period of extended trade training. Some objections to block release, especially for the first year of apprenticeship, have been expressed by employers, mainly in small firms which are disinclined to take on apprentices only to have them leave the workplace for many weeks of basic instruction. Critics also point out that since the dropout rate is highest in the first year, it might be wiser to delay this expensive form of training until the second year. In the pilot tests in 1971 it was found that apprentices who had the extended training period in the first year were more productive than those who did not have such initial off-the-job training. The subsidy, which cost N.Z.$724,000 in 1978-79, has not increased the number of apprentices above the expected level, but quality of training has improved.

Fulltime institute-based preapprentice training has been available for Maori youth from rural districts since 1969 because apprenticeship opportunities in firms are particularly scarce in their areas. Through 1976, 3,352 Maori rural youth were enrolled in the one year pre-apprenticeship course; over 20 percent of these did not complete an apprenticeship, about the same proportion as among all apprentices. For a class of 30 preapprenticeship students, the government's expenditure

in 1976 was over N.Z.$180,000, averaging more than N.Z.$6,000 per student. In 1979 there were 33 Maori trade training courses enrolling 590 students. The program has won advocates who would like to extend it to other rural and even urban youth.

In 1977 the government approved pilot preapprenticeship schemes in the Auckland urban area for unemployed youth regardless of ethnic origin. Part of a special youth employment training program, the Auckland scheme offered courses in carpentry, fitting and turning and motor vehicles. The courses ran into considerable opposition from the industry training board, the national apprenticeship committee, and the trade unions, whose prior endorsement had not been obtained. When the scheme was reviewed, these groups withheld approval because they felt that no net increase in apprenticeship resulted since the preapprenticeship students replaced those who would have been apprenticed in the normal way. It is therefore doubtful that sponsored preapprenticeship for all youth will win acceptance in New Zealand very soon.

Another program for unemployed youth, begun in January 1979, offers employers N.Z.$30 a week for one year for each apprentice they hire above the number employed on March 31, 1978. Employers can receive no other subsidy. By September 1979, 1,885 apprentice contracts were in force under this program.

Great Britain

Britain has been outstanding in its use of financial incentives to increase the number of apprentices both over the business cycle and in the longer term. The Training Services Division of the Manpower Services Commission is the agent on the government side while the Industrial Training Boards (ITB) conduct Board training activities and supervise training by their member firms. Since the ITBs already are engaged in their own measures to encourage apprenticeship intake by grants of funds collected through levies on employers, it is important to distinguish between government financial assistance which adds to existing ITB programs and public aid which sets up new programs. A current estimate is that the government recently has financed 50 percent of ITB outlays on apprenticeship training. The European Social Fund of the European Communities also has contributed money to some of these programs, as it has to certain Irish programs, to stimulate and strengthen apprenticeship training under AnCO, the central Irish training body.

The chief mechanisms used by the British government to increase apprentice intake have been premium grants, supplementary grants, training awards and recruitment grants. In addition, redundant apprentices' adoption grants have been established for apprentices whose own employers cannot complete the scheduled training because of economic adveristy. Premium grants have been paid to firms for

apprentices recruited above a norm which has been set for an industry by taking into account the expected level of intake, the total intake judged to be necessary and desirable, and the likely effect of incentives of different amounts. The norm then has been applied to an individual firm; for example, the premium grant might be available for each apprentice above a level of 60 percent of average intake over the last three years. Premium grants have taken two forms: a grant for twelve months for each apprentice taken on for at least two years of training with a guarantee of a complete apprenticeship and a period of initial training off-the-job, including related education; a smaller grant for twelve months for each apprentice taken on for at least one year of on-the-job training.

Supplementary grants have been used to increase the level of aid offered by ITBs to employers for all of their apprenticeship intake. Applied only in one or two industries, the construction industry in particular, this measure has been used to maintain or increase apprentice intake when there is a severe recession impact and also to stimulate employers to use the off-the-job initial training scheme instituted by the Construction Industry Training Board.

Training awards have been introduced where the other two types of grant have been unlikely to produce the desired intake by the industry. The ITB itself has recruited the apprentices, offered first year off-the-job training in its own centers, paying these apprentices a weekly allowance, and then has tried to place them with employers.

Recruitment grants have been paid to firms which agree to hire apprentices when they complete the first year in a Training Award Scheme. Such employers must complete the apprenticeship training and not reduce their intake of new first year apprentices. Failing to place the apprentice, the ITB might offer a second year of off-the-job training under continued training grants. The government's contribution has supplemented ITB funds for this activity.

Redundant apprentices' adoption grants have been offered for apprentices who have been laid off at any time before the final six months of training and who could not be transferred to another employer in the normal manner. A firm which agreed to complete the training of such an apprentice and did not reduce its own intake could receive a grant up to a maximum in the first two years of apprenticeship and slightly less thereafter.

From the beginning of the program in 1975 to the middle of 1978, 106,630 grants and awards had been made. Of these, almost half, 46,600, were premium grants. There were 16,750 training awards and 23,700 supplementary grants. Official estimates are that apprenticeship intake was increased by about 25 percent. Well over £100 million has been spent by the Training Services Division, but some account should be taken of government savings on supplementary benefit which many young unemployed people might have claimed if they had not been taken in as apprentices under the subsidy arrangements.

The special countercyclical programs had their final intakes in 1979/80 and will be succeeded by permanent arrangements, called the Training for Skills program. This program provides that industry should decide for itself the types of training it wishes and assume almost all of the costs. Current opinion in the Manpower Services Commission holds that if industry is not prepared to pay for such training, in the long run the form of training itself may be wrong. The implied cutback in government financing, reinforced by the Conservative government's stringent financial policies, may reduce or end government assistance to apprenticeship, except for a revival in a severe recession. However, many in Britain still believe that the government must accept a substantial and permanent contribution to apprenticeship costs if the system is to survive.

Germany

Germany's financial contributions to apprenticeship at the Federal level do not include direct payments to private employers. Some States offer subsidies to increase or improve apprenticeship which supplement Federal money or create new programs, mostly for umemployed youth. The school costs of the basic vocational training year (BGJ) are borne by government at the Federal and State levels.

Confining the discussion to the Federal Government, two main types of government financial assistance are offered in Germany. Much of the capital and operating cost of inter-firm training centers (Überbetrieblichen Ausbildungsstätten) is assumed by the government. Providing supplementary practical training, these centers also accomodate some first-year apprentices who cannot find firms. Employers are not relieved of costs they previously bore, but these centers establish a means for improving training without placing all of the added costs on the firms.

The second type of financial aid, given to apprentices from low income homes, has been in place for many years. Although relatively few apprentices receive financial aid, in recent years there has been a great increase in the number of recipients relative to the total number in apprenticeship and a rapid rise in handicapped recipients as a proportion of the total number. This trend is in keeping with attempts to enlarge the participation of handicapped youth in apprenticeship.

The German government has introduced a negative financial inducement to employers to increase apprenticeship. A law passed in September 1976 contained the threat that a payroll tax of up to 0.25 percent could be levied on employers (in principle, with 20 or more employees) in any year in which the total supply of apprenticeship places was not at least 12.5 percent above the total number of young people seeking places. The tax has not yet been applied because the employer response has been judged satisfactory overall, although regional and other imbalances

persist. The trade unions contend that the law has not been observed strictly and have objected to government decisions not to apply the tax. Under the threat of a tax, new apprenticeship contracts rose markedly from 1976 through 1979, following several years of little change in numbers. However, the new law had little impact on the residual of unsatisfied applicants for apprenticeship places--27,700 in 1976, 26,400 in 1978 and 20,200 in 1979. Nevertheless, this small decline was notable during years of sharp rise in the size of the age group and in the total number of applicants for apprenticeship places. Also, the number of unfilled openings rose from 22,000 in 1978 to 37,000 in 1979. For 1979-80, the official forecast is, for the first time, a small surplus of openings over applicants.

Two other countries which are strongholds of apprenticeship, Austria and Switzerland, have managed to increase apprenticeship intake without any positive or negative financial incentives to employers. It should be borne in mind, however, that apprentices in these countries earn much less relative to skilled workers than is true of the English-speaking countries. Government appeals to employers to expand intake in order to accomodate the baby boom cohorts have combined with the fact that in past years many employers had been unable to obtain as many apprentices as they desired. Now firms have been able to find enough young applicants, in part because vocational education schools have not expanded rapidly enough to admit all who wished to enter.

In three countries, Finland, the Netherlands and France, recent youth unemployment programs have included provisions to create job opportunities for youth through subsidizing apprenticeship. In Finland and the Netherlands the new programs supplement earlier subsidies to employers, but the French program introduced a new principle.

Finland

Finnish employers have been eligible since 1967 for a subsidy for each apprentice who receives approved training and has worked for the firm for at least 14 days during that month; the subsidy amount declines for each year of apprenticeship. During 1975 about 3 million Finnish marks were paid to employers. In addition, during related instruction the apprentice receives a daily tax-free allowance (since employers are not obliged to pay wages in such periods), free meals and lodging or a travel reimbursement, and, if head of a family, a family allowance. In 1975 government outlays for related instruction (teachers' salaries and other school costs plus aid to apprentices) amounted to 6.5 billion Fmk., about 2,300 Fmk. per apprentice.

The youth employment program in 1977 provided a subsidy of 750 Fmk. per month for each new apprentice which was added to the existing subsidy of 280 to 320 Fmk. per month in the first year of apprenticeship and 140 to 160 Fmk. in the following years. Since apprentices over 17 years of age receive at least the minimum wage, which was 1,200 Fmk. in 1976,

the two subsidies gave employers a high proportion of the starting apprentice wage. The special subsidy is payable only for apprentice places offered to unemployed young people under 25 years of age; firms, municipalities and groups of municipalities are eligible to receive the subsidy. The subsidy is paid twice a year directly to employers after approval of employer applications and a review of the apprentice's training record by the local apprenticeship board to see that satisfactory training has been given. The withholding of subsidy until training has been verified is an important feature.

Although planned as a single year program, the special subsidy has been renewed. Its favorable impact on apprenticeship recruitment is accepted because there has been a rapid rise in the total number of apprentices. An employer in a factory producing heavy machinery said that the subsidy had induced him to hire 5 apprentices, the firm never having had any previously. Both the particular recruits and the addition of young people to a somewhat older work force had been judged a success and it was said that apprenticeship would be continued in the firm even if the subsidy ended.

The expectation of Finnish officials is that all apprentices will be covered by the subsidy when apprenticeship contracts written before February 1977, prior to the new subsidy, are completed. It may then become necessary to maintain indefinitely the subsidy level provided by the two programs in order to maintain or increase apprentice intake. Another youth program under discussion in Finland, Work Experience, is designed so that it can, to a small extent, be implemented through the apprenticeship system. It is planned that employers will be paid monthly sums for Work Experience recruits which are fairly close to those currently received on behalf of apprentices.

The Netherlands

Prior to 1975, government subsidies to apprenticeship consisted of administrative and other grants to Industry Training Foundations (and associated bodies), and small payments to employers toward apprentice wages for time spent in related education and "participation" education in the case of 16 year-olds. The series of youth employment programs introduced in 1975 contained one measure that was related to apprenticeship and has been renewed annually at least through 1980. It provided that a qualified firm or other body which offered a practical training course to a young unemployed person under the age of 23 could receive a subsidy towards training costs of 100 Fl. per week in the first year and 50 Fl. per week thereafter. The wage of apprentices must be at least the legal minimum wage and in July 1979 the minimum was 196.20 Fl. a week for a 16 year-old and about 25 Fl. more for 17 year-olds. Therefore, the subsidy provided about 40 percent of the minimum wage in the first year, but employers also have to pay about 25 percent

of the wage bill in social security charges.

The subsidy stimulated the development of apprenticeship in business and other fields which earlier had few apprentices and probably made for a smaller reduction than would otherwise have occurred in many of the traditional apprenticeship fields. Apprenticeship in Holland had been declining overall from 1973 to 1976 and barely held its own in some sectors. The number of apprentices increased in 1977 and later as a result of the subsidy. Representatives of the trade unions in the construction trades said that the subsidy was used for a level of recruitment which would exist without it. They were opposed to an increase in construction apprentices through the subsidy so long as the job opportunities at the end of training remained as poor as they have been in recent years.

Virtually all Dutch apprentices are now subsidized and it is believed that the removal of the subsidy might lead to a drastic reduction in intake. Employers hold that the subsidy should be enlarged and made permanent in one fashion or another because they regard the subsidy as a necessary adjustment to apprentice wages due to the treatment of apprentices as identical to young workers in the Minimum Wage Law of 1974. This was a change from the prior situation under collective bargaining and it raised the wages of some apprentices. The Employers' Federation (VNO) offers as one alternative that employers should pay apprentices only when they work in the firm. If this were done it would result in a reduction of 40 percent in apprentice wages and remove the need for a government subsidy to employers, although government might then have to pay apprentices directly for the two days a week away from the job.

Government officials, on the other hand, object to calling the program a subsidy to employers, preferring to view it as a form of aid to unemployed youth which should be temporary. Government officials believe that, in the longer run, industry, with some government subsidy, should be required to finance apprenticeship through a levy-grant system in which firms which do not train or train inadequately pay part of the costs of those that do train. Until youth unemployment becomes a less pressing social problem and special programs are not needed, head-on confrontation is unlikely between industry and government on the long-range financing of apprenticeship.

France

An apprenticeship tax has long been paid by firms to the French government which uses the proceeds to support apprenticeship and other training activities. Firms may deduct their expenditures on approved training from the special tax. In 1976, the government spent Fr. 900 million on apprenticeship of which Fr. 500 million came from the apprenticeship tax on employers. Recently, the apprenticeship tax has

been increased as the government sought to improve and increase apprenticeship training. To some extent, therefore, government subsidies for apprenticeship have been paid by a specific tax on employers.

In 1977, as part of the measures to deal with youth unemployment under the National Employment Pact drawn up between the government and the employers' organizations, employers who hired apprentices under contract between July and December 1977 were exempted for a maximum of two years from all social security charges, estimated at about 35 percent of an apprentice's wage. (The wage of apprentices under 18 years of age starts at 15 percent of SMIC--the minimum wage--and rises to 45 percent toward the end of a two-year apprenticeship; in 1980, the SMIC equaled about $3.30 an hour.) To qualify for the tax exemption, employers had to hire unemployed youth (under 20 years of age) and give them a prescribed practical training in the firm plus at least 360 hours of theoretical training in a special apprenticeship center (CFA). As the period of the law ended, it appeared that over 108,000 subsidized apprentices had been recruited, a slight increase over earlier years' intake. The total cost of the subsidy was Fr. 200 million, representing the government's contribution to the social security funds on behalf of employers excused from the taxes.

The public cost of all the youth employment measures in 1977-78 was considered too high, although direct training taxes on employers were estimated to have paid for one-fifth of the total cost. Therefore, the 1978 law establishing the second national employment pact for youth offered another apprenticeship provision in which exemption from social security charges was only for the first year. Almost 104,000 apprentices were subsidized between July 1978 and April 1979, with the subsidy period still to go on until the end of December 1979. Additional taxes were not placed on employers for the 1978 measures, but changes were made in the distribution of the receipts from training and apprenticeship taxes in order to direct additional amounts toward the financing of the youth measures. In addition, employers were permitted to exclude apprentices as employees in calculating certain business tax liabilities.

In 1979 a new law established permanent exemption from social charges for recognized artisan firms and certain other small firms, by far the most important employers in French apprenticeship. The exemption from social charges covered all new apprentices over the whole period of apprenticeship, but not for more than three years.

These employer obligations were assumed by government. A second apprenticeship law provided for all other firms on a temporary basis. Repeating earlier points in the programs of previous years, the law set a longer period, July 1979 to the end of 1981, for the subsidized recruiting period. A new provision set aside a fraction of the employers' apprenticeship tax for a fund to compensate employers for wages paid to apprentices when they attend the CFA. It is anticipated

that about 115,000 apprentices will be subsidized at a cost of Fr. 460 million under each of the two programs, doubling the earlier effect.

Summary of Financial Assistance

A few other measures involving government financial support in a number of countries deserve mention. The utilization of extra training capacity in private and public enterprises, such as the railways and post office, has been selected in several countries as a supplementary way to absorb additional apprentices. Exemption from company income tax of all sums spent on training, including apprenticeship, is another common form of aid. Tuition-free related education in which the government bears all costs of providing courses is a common feature. Government sharing of the cost of apprentice wages during related education appears to be spreading.

In summary, much of the governmental financial aid to apprenticeship is recent, dating from 1975 in most cases and influenced by the economic recession. Although usually conceived as temporary measures, these programs generally have been renewed and have even been enacted in permanent form. Incentives to employers mostly cover all new apprentices, rather than all apprentices above some previously determined level; the marginal principle has not been applied in most cases. Finally, full-scale evaluations of the apprenticeship subsidy programs have not been made thus far. A program tends to be considered successful if it raises apprenticeship intake or if the number in apprenticeship falls less than the total number employed in the relevant branches. In the period ahead evaluation studies may be undertaken such as are now common in the U.S. in regard to subsidized training programs.

VIII. POLICY IMPLICATIONS FOR AMERICAN APPRENTICESHIP

At the outset it should be recognized that on some issues little guidance for American apprenticeship policy can be drawn from foreign practice because other countries have not yet adopted some apprenticeship goals which are of paramount importance in the United States. Foreign experience is not particularly enlightening in regard to the American goals of increasing the proportion of minority and female apprentices and the acceptance of females in traditionally male training occupations. While the U.S. should continue to observe efforts on behalf of minority groups and females in Germany, these policies are unlikely to replace established American approaches. On the whole, the U.S. leadership in these areas is so advanced that other countries must and do study American law and practice.

It is possible to suggest a large number of potential changes in American apprenticeship on the basis of trends in other countries which appear to have widespread acceptance there and offer evidence of having improved foreign apprenticeship systems. Such an approach would overlook several important differences between apprenticeship in the U.S. and in other countries. It also would not address the issues of acceptability and the possibility of implementing the suggested policies in the United States. Nor would it meet the objection that many of the suggestions from abroad already are in place in one or more American apprenticeship programs and that we need to generalize these to the entire country rather than to import new ideas.

Granting that such a process of generalization could reduce the number of relevant foreign apprenticeship ideas for U.S. policy, additional suggestions could still be drawn from foreign experience. However, it must be understood that the ideas which follow are offered without any consideration of their suitability for transfer or acceptability to the American apprenticeship community.

Among the suggestions would be:

Establish multi-partite industry training boards by legislation. Such boards would operate levy-grant systems, decide on the number of needed apprentices and other types of training, offer off-the-job introductory training, standardize recruitment qualifications, devise modular training, coordinate related instruction, shorten duration of training, certify proficiency and in general take over responsibility for apprenticeship as the initial skill training phase of a sequence of life-long training possibilities.

Make apprenticeship a youth program, while providing adequate opportunities to enter skill training for those who miss apprenticeship in youth. Apprenticeship should recruit directly from high schools with regular application periods in the Spring and entrance in the Fall of each year. Provision for high school

dropouts should be through preapprenticeship courses.

- Establish standard education and experience requirements for training instructors in the workplace. Journeyman status would not be sufficient to qualify. Trainers should be competent to supervise and should understand pedagogical methods.

- Make related instruction a paid part of the regular work week.

- Through Federal-State action, coordinate apprenticeship and vocational education. This would involve the acceptance of approved vocational education as a substitute for a portion of or a coordinate part of apprenticeship. It also would include standardized proficiency examinations in occupational skills without regard to the type of training.

- The Bureau of Apprenticeship Training in the Department of Labor should be strengthened in staff and functions, with the ultimate objective of declaring that the supervision of vocational training of any kind is a federal function while the states retain control over education.

A cursory examination of the foregoing suggestions, which might be made if the most common and effective trends in foreign apprenticeship were the guide, probably would cause most Americans familiar and concerned about apprenticeship to reject the list as impractical and unlikely to win approval at least in the foreseeable future. They would be likely to favor a more cautious and modest approach toward the transfer of foreign apprenticeship practices. When such a view is taken, only a few areas and a limited list of possible directions for U.S. apprenticeship policy emerge. If the resulting ideas do not seem innovative enough, one must ask those who object why they do not approve the previous list which does include innovations. Similarly, if the ideas to be presented below are rejected because they have been proposed before, one must ask why they have not been implemented up to this point.

There are three main areas in which foreign developments and trends in apprenticeship suggest possible directions for U.S. policy: expanding the total numbers in apprenticeship; the introduction or heavier use of apprenticeship in certain occupations; and changes in the role and functions of the Federal Committee on Apprenticeship (FCA).

An increase in the number of apprentices involves both improved recruitment and retention. Based on foreign experience, efforts to stimulate recruitment by financial incentives to employers appears to be a reasonable approach. It is doubtful that demonstration projects or appeals to employers would be productive or that payroll taxes could be threatened, as in Germany. To be effective, the amount of a wage subsidy probably should equal 35 to 50 percent of the total apprentice wage, including existing payroll taxes. It is the usual practice to

give subsidies for all first-year apprentices hired in a given year, but it is possible to limit the subsidy to marginal apprentice intake above a stipulated level for firms which already have registered apprenticeship programs. As a lure to other firms, a special premium could be offered for companies instituting new registered programs. German experience indicates that the expansion of the numbers of apprentices occurred almost entirely within firms already training some apprentices.

If a program is launched, a time limit on the recruitment period could be set and a trial program could be run with built-in monitoring and evaluation. Such a program can be established independently or as part of a youth employment program, in which case the age, family income and employment status of the potential apprentices can be more directly specified.

Better retention of apprentices through the entire training period probably can be achieved by a combination of the factors which account for the much lower dropout rates in certain foreign countries (see Non-completion of Apprenticeship). Completion has a relatively low value for those in the last year in the U.S., since neither skilled status nor large wage increments depend on actual completion of apprenticeship. It is claimed that the substitution of competency-based progress for fixed time periods leads to less dropping out throughout the apprenticeship, but hard data are not available. Reduction of the average age of entry might result in a higher completion rate since the pressure of family responsibilities and need for income would weigh less heavily on younger apprentices. Because the construction trades account for so large a part of American apprenticeship, job security or alternative arrangements over seasonal and cyclical downturns are important ways of reducing both terminations and dropouts.

It is an American goal to introduce apprenticeship into occupations in which it is now unknown and to obtain its greater utilization in occupations where it is a marginal method compared to other training methods. Foreign experience suggests a limited range of occupations and selected means to achieve this aim. All of the other countries, including all the English-speaking countries, train through apprenticeship almost all mechanics employed in repair work on motor vehicles, office machines, television and radio, household appliances, etc. The result appears to be a higher standard of competency in the repair work, greater consumer protection and less fraud, a longer life for the machines and equipment, and cleaner and safer workplaces because of adherence to the standards imposed on apprenticeship training.

Lacking the tradition to train for these occupations through apprenticeship, American employers are unlikely to respond widely, even to fairly generous financial incentives. A more promising approach might be to combine financial incentives with compulsory competency

testing or certification through completion of an approved apprenticeship. This latter method has been in use in Ontario, Canada for many years for service occupations which directly affect consumers; practitioners in a designated list of occupations must have completed an apprenticeship, unless they fall into a special category. A recent survey showed strong support for this system by industry and others.

A consideration of the potential role and functions of the Federal Committee on Apprenticeship (FCA) affords an opportunity to weigh the value to the U.S. of several specific features of other countries' systems. An obvious beginning is to strengthen the FCA itself by providing a full-time director and a small professional staff. There may be a need in the U.S. for a National Training Council, organized along the lines of both the FCA and the National Commission for Employment Policy. Among the functions of a National Training Council would be the coordination of apprenticeship with vocational education, on the one hand, and with training beyond the initial level, on the other hand. Even if the U.S. does not face skill shortages of such magnitude as to require a National Training Council on that account, such a Council could aid in the coordination of various types of training, the provision of a meeting ground for the education and manpower agencies at Federal and State level, and a reduction in the institutional isolation characteristic of American apprenticeship but no longer true of its counterparts elsewhere. A link might be forged between the National Commission for Employment Policy and the FCA if a National Training Council is not created.

The FCA could sponsor one or more centers for research, experimentation and demonstration projects in apprenticeship and to disseminate information. It is possible that the nucleus for such centers could be found in the National Center for Research in Vocational Education which has taken an interest in apprenticeship, but currently is primarily concerned with school-based programs. Alternatively, Apprenticeship Clearinghouses can be used.

The FCA also could play an active official role in the organization of the apprenticeship officials of the states (NASTAD) in order to improve practice in such areas as State and Federal apprenticeship laws and practices, harmonization of State laws, effective training practices, portability of credentials, efforts to publicize apprenticeship among employers and guidance counselors in schools, and the increased use of paid worktime for related instruction.

It is not suggested that an enlarged and improved American apprenticeship system will automatically follow from these primarily organizational measures. But the experience of other countries indicates a correlation between supportive infrastructures and larger and more pervasive apprenticeship programs.

APPENDIX A

COUNTRIES VISITED AND INDIVIDUALS INTERVIEWED

AUSTRALIA

T. L. ADDISON
Federal Secretary, Australasian Society of Engineers

LES BAIN
Organiser, Labor Council of New South Wales

A. C. BERT EVANS
Deputy National Director,
Metal Trades Industry Assn. of Australia

J. F. (JIM) BITOMSKY
Executive Officer, Metal Trades Industry Assn. of Australia
New South Wales Branch

P. J. DARBY
Acting Director of Apprenticeship,
Apprenticeship Directorate of New South Wales,
Department of Industrial Relations

W. C. GILES
Secretary, Victorian Operative Bricklayers' Society

FRANK HARDING
Assistant Secretary, Clothing & Allied Trade Unions
New South Wales Branch

CHRIS McCARDLE
Industrial Officer, Labor Council of New South Wales

PAT McCORMACK
President, Industrial Training Commission

D. McLEISH
Secretary, Electrical Trades Union of Australia
New South Wales Branch

BRUCE McLEOD
Organiser, Div. 26, New South Wales
Amalgamated Metal Workers' and Shipwrights' Union
New South Wales State Council

AUSTRALIA - 2

FRANK MOSSFIELD
Organizer, Australian Society of Engineers

E. NITZCHE
Secretary, Hairdressers & Wigmakers Employees' Union

GEORGE POLITES
Director General, National Employers Industrial Council

H. D. TURNER
Senior Apprentice Training Officer, Training Resources
Public Transport Commission of New South Wales

BARRIE UNSWORTH
Assistant Secretary, Labor Council of New South Wales

G. R. WILLIS
Director, Metal Trades Industry Assn. of Australia
Victorian Branch

DOUG WRIGHT
Director, New South Wales Branch
Metal Trades Industry Assn. of Australia

AUSTRIA

HANS BAMMER
Berufsausbildungsreferent
Techn. Deleg. B. D. Intern. Organ. F. Berufsausbildung

ALFRED HELA
Fachsekretär der Gewerkschaft der Bau- und Holzarbeiter

JOHANN KÖTELES
Zentralkassier der Gewerkschaft der Bau- und Holzarbeiter

HANS LEDL
Ministerialrat, Federal Ministry of Commerce, Trade and Industry

REINHOLD LUDWIG
Direktor der Bauarbeiter Urlaubskasse

ROMAN RAUTNER
Vorsitzender der Gewerkschaft der Bau- und Holzarbeiter

WALTER SITEK
Ministry of Social Affairs

FRIEDRICH VERZETNITSCH
Jugendsekretär des OGB, Youth Secretary, Austria Trade Union Federation

WALTER WEIGL
Metal Workers' Union, International Department

BELGIUM

N. BLOCK
Director, General Electric - Belgium

A. VANDEN BROUCKE
Vice President, General Federation of Belgian Trade Unions (FGTB)

A. COEN
Counselor for Vocational Training, Ministry of Labor

F. VERRIEST
Ministry of Labor

CANADA

G. BEAUSOLEIL
University of Montreal in Quebec

G. C. BOTHAM
Director General, Employment Training Branch,
Canada Employment and Immigration Commission (CEIC)

G. CHARBONNEAU
Manpower Directorate, Ministry of Labor and Manpower,
Quebec Province

R. LAPLANTE
Training Programs Service,
Ministry of Labor and Manpower, Quebec

D. McCALLUM
Director, Institutional Training Branch,
Canada Employment and Immigration Commission (CEIC)

C. McKERRAL
Canadian Construction Association

H. J. MEYER
Employment and Training Branch,
Canada Employment and Immigration Commission (CEIC)

J. R. NOREAU
Ministry of Labor and Manpower, Quebec Province

R. PAYETTE
Director of Training School, Montreal, Quebec

W. PRICE
Faculty of Administrative Science, Laval University, Quebec

M. RYGUS
International Association of Merchants and Aerospace Workers

J. SEXTON
Department of Industrial Relations, Laval University, Quebec

J. SIMARD
Director of the Trade Qualification Service,
Ministry of Labor and Manpower, Quebec Province

CANADA - 2

J. STEIN
Task Force on Mobility of Construction Workers

N. G. ST.-JACQUES
Director, Program Analysis and Development,
Canada Employment and Immigration Commission (CEIC)

J. TANGUAY
Task Force on Mobility of Construction Workers

A. WHITE
Executive Secretary, Inter-Provincial Program in Trade Qualifications

Visit to Myers Motors, Ottawa

Visit to Algonquin Community College, Ottawa

DENMARK

K. AKJAER
Federation of Danish Mechanical
and Metalworking Industries

J. BRODAM
Federation of Danish Mechanical and Metalworking Industries

J. HANSEN
Danish Federation of Trade Unions

C. HENDELIOWITZ
Employment Division, Ministry of Labor

N. HUMMELÜHR
Ministry of Education

E. KONDRUP
Vocational Training Division, Ministry of Labor

I. MAERKEDAHL
Danish Institute of Social Research

I. MØLLER
Danish Institute of Social Research

O. WESTERMAN
Federation of Danish Mechanical and Metalworking Industries

FRANCE

A. BRUYERE
Deputy Director General, Technical Education,
Ministry of Education

A. GUILLOT
National Secretary,
Federation de l'Éducation Nationale (FEN) Teachers' Union

R. HADAS-LEBEL
Special Assistant to the Prime Minister

N. MAUPEOU-ABBOUD
Groupe de Sociologie du Travail,
University of Paris VII

A. MOUCHOUX
Federation de l'Education Nationale (FEN) Teachers' Union

M. OLIVIER and others
Fédération du Batiment-Force Ouvriere
Construction Workers' Trade Union and Training Center at Noisy-le-Grand

J. ROUSSELET
Centre de Études de l'Emploi (CEE)

FINLAND

B. HENKOLA
Production Manager, Oy Helprint Ab

A. KAISANIEMI
Chief Inspector, National Board of Vocational Education

E. TUULIKKI KUMPULAINEN, Senior Lecturer

K. PAUKKU, Chief Engineer

P. SINIVAARA, Chief Engineer, Vocational Training Courses

A. TEMMES, Information Secretary

R. KOISTINEN
Käpylä Vocational School

V. KORPINEN
Ministry of Labor

J. LEHTONEN
Director of Training Department, Finnish

L. MELAMETSA
Ministry of Education

O. MIEITINEN
Production Manager, Mercantile Oy Ab

P. ÖHMAN
Central Organization of Finnish Trade Unions (SAK)

J. PAULO
Superintendent, Oy Helprint Ab

E. SUIKKANEN
Chairman, Wood Workers' Union

J. TOIVONEN
Training Inspector, Helsinki

GERMANY

JOHANN BARTMAN
Leiter gewerbliche-technische Ausbildung,
Bayerische Motoren Werke AG, Munich

CHRISTOPH DALIBOR
Regierungsdirektor, Bundesministerium
für Bildung und Wissenschaft (BMBW)

PAUL J. DINE
Zentralbereich Personal, allgemeine Bildungspolitik,
Siemens AG

FREDERIC G. DRAKE
President, General Electric - Germany

RUDOLF FINKL
Leiter, Zentralabteilung Aus- und Weiterbildungzentrum,
AEG - Telefunken

AXEL GERLACH
Leiter betriebliches Bildungswesen,
Gillette Deutschland GmbH

DOROTHEA GRIEGER
Bundesinstituts für Berufsbildung (BIBB)

GERHARD HAASE
Leiter gewerbliche-technische Ausbildung,
Gillette Deutschland GmbH

HORST HAASE
Deutsches Gewerkschafts Bund, Berlin (DGB)
Federation of German Trade Unions

HERBERT HOLTERHOFF
Manager, Personnel Development
Adam Opel AG

J. D. HUBNER
Public Relations
Bayerische Motoren Werke AG, Munich

DIETER ISENSEE
Free University of Berlin

GERMANY - 2

P. JAHN
Berufsausbildung,
Adam Opel AG

FRANZ LAMMERT
Kultusministerium, North-Rhine-Westphalia

GERO LENHARDT
Max-Planck Institut, Berlin

KARL MEY
Personldirektor und Prokurist,
Gillette Deutschland GmbH

PETER MITZSCHERLING
Senatsdirektor für den Geschäftskreis Arbeit
bei dem Senator für Arbeit und Soziales, Berlin

MATHIAS RICK
Bundesinstituts für Berufsbilding (BIBB)

HEDWIG RUDOLPH
Institute for Social Sciences, Technical University, Berlin

PETER SCHENKEL
Bundesinstituts für Berufsbilding (BIBB)

HERMAN SCHMIDT
Gereralsekretär, Bundesinstituts für Berufsbildung (BIBB)

DIETER SCHWEINLE
Manager, Personnel and Employee Relations,
General Electric - Germany

HARTMUT WELZEL
Department of Educational and Vocational Planning,
Ford-Werke AG, Cologne

RUDOLF WERNER
Bundesinstitut für Berufsbilding (BIBB)

SIEGFRIED ZIMMERBEUTEL
Referent, Industrie- und Handelskammer, Frankfurt am-Main

GREAT BRITAIN

S. CLAYDON
National Training Survey, Manpower Services Commission

JOHN DUNN
Principal Psychologist, Training Services Division,
Manpower Services Commission

G. F. ELLIOTT
Clerk to the Council,
National Joint Council for the Building Industry Trades Unions

J. K. FULLER
Training Services Division, Manpower Services Commission

M. FRESHWATER
Training Services Division, Manpower Services Commission

M. GOATMAN
National Training Survey, Manpower Services Commission

D. GRIFFITHS
Field Officer, Construction Industry Training Board (CITB)

P. HAXBY
Chief Executive, Training Services Division,
Manpower Services Commission

GEORGE HEDGES
Senior Lecturer,
Vauxhall College of Building and Further Education

P. MANDELSON
Chairman, British Youth Council

DERRICK PHILLIPS
Director of Training Policy,
National Federation of Building Trades Employers

G. W. L. PRYER
Engineering Industry Training Board (EITB)

B. RUBNER
General Secretary, Furniture, Timber, Allied Trades Union

GREAT BRITAIN - 2

J. SMITH
Director, Vauxhall College of Building and Further Education

P. WHALEY
Director of Information, Industrial Training Board, Construction Industry

J. WILDE
Special Programs Division,
Manpower Services Commission

IRELAND

JOHN A. AGNEW
Director General, AnCO - The Industrial Training Authority

Staff:

T. L. Culleton, Deputy Director General

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Irish Transport and General Workers Union

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THE NETHERLANDS

N. BOEREN
Education Training Department
Dutch Federation of Employers' Organizations (VNO)

N. BORGONJE
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Education and Training of Working Youth, The Hague

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Foundation for Road Building (SBW) Gouda

L. LAMPE
Directorate General of Manpower Management

M. PONTIER
Foundation for Apprenticeship Training in the
Metal and Electrotechnical Industries, BEMETEL
The Hague

H. SPIJKERMAN and others
Building Workers Union (FNV), Woerden and Directors of
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J. C. TROOSTER
Foundation for Apprenticeship Training in Building Construction,
Woerden

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President, New Zealand Federation of Labor

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Engineering Industries National Association

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Norsk Elektrisk Brown Boveri

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U. ASP
International Secretary, Confederation of Trade Unions (LO)

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Federation of Swedish Building and Civil Engineering Employers

C. CANARP
Research Division, National Labor Market Board

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Ministry of Labor

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Ministry of Labor

H. LARSSON
Swedish Metal Workers' Union and
Confederation of Trade Unions (LO)

G. LOFSTRAND
Confederation of Trade Unions (LO)

C. LUNDEBERG
Division of Apprentice Training,
National Board of Education

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S. NYSTEDT
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Ministry of Labor

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Ministry of Labor

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National Labor Board

B. THELLMAN-GUSTAFSON
Head, Job Training Section, Department of Employment Planning,
National Labor Market Board

B. WHINBERG
President, Building Workers' Union

R. WIKNER
Division of Apprentice Training
National Board of Education

Y. WIKSTROM
Job Training, Building Workers' Union

SWITZERLAND

R. CLAVEL
Director, Centre d'enseignement professionnel pour l'industre et l'artisanat de Geneve (CEPIA), Geneva

E. GERBER
Chief, Apprenticeship Section,
Federal Office for Industry, Crafts and Labor, Berne

M. GERBER
Director, Personnel and Office Operations,
Agathon Ltd., Solothurn

R. GURNY
Sociological Institute,University of Zurich

J. E. LÖFBLAD
Secretary General,
International Federation of Building and Wood Workers, Geneva

O. NICKLER
Director, State Office for Vocational Education, Berne Canton and President of Conference of Cantons (German Speaking) for Vocational Education

A. PASCHE
Director, Vocational Training Service, Geneva Canton

H. PFLUGER
President and Chairman of the Board of Directors
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M. PITTARD
Director, Apprenticeship Training,
Swiss Metal Workers' Union, Geneva Section

O. SAUTER
Secretary, Swiss Employers' Association,
Machine and Metal Industries (ASM), Zurich

M. SCHELKER
National Secretary,
Gewerschaft Bau- und Holz (GBH), Zurich

I. SIMONA
International Metalworkers' Federation (IMF), Geneva

SWITZERLAND - 2

W. SPRENGER
Head of Vocational Training,
Sulzer Brothers Ltd., Winterthur

P. STAUB
Director, Zurich Cantonal Master Builders' Union,
Training Center for Building Trades, Effretikon

H. STRICKER
Secretary, Zurich Section Bau, Gewerkschaft Bau- und Holz (GBH)

INTERNATIONAL ORGANIZATIONS

J. M. ADAMS
CEDEFOP (Centre européen pour le développement de la formation professionnelle)

R. CLEMMETT
CEDEFOP (Centre européen pour le développement de la formation professionnelle)

T. FROGNER
Nordic Council of Ministers, Secretariat, Oslo

S. GRABE
Vocational Training, International Labor Office (retired)

H. C. JONES
Chief of Coordination, Vocational Training Office, European Communities

C. JOURDET
Nordic Council of Ministers,
Secretariat for Culture and Education, Copenhagen

G. LÖWEN
Employment and Vocational Training Department, European Communities

V. C. MAYER
Vocational Training, International Labor Office

F. PORCASI
Employment and Vocational Training Department, European Communities

B. SELLIN
CEDEFOP (Centre européen pour le developpement de la formation professionnelle)

R. TAVITIAN
Chief, Employment and Vocational Training Department, European Communities

J. ZACHARIA
Vocational Training, International Labor Office

APPENDIX B

EXCHANGE RATES, FEBRUARY 1980

Country	Monetary Unit	Value in U.S. dollars February 15, 1980
Australia	dollar	1.11
Austria	schilling	.08
Belgium	franc	.04
Canada	dollar	.86
Denmark	krone	.18
Finland	mark	.27
France	franc	.25
Germany	mark	.58
Great Britain	pound	2.30
Ireland	pound	2.13
Netherlands	florin	.52
New Zealand	dollar	.98
Norway	krone	.21
Sweden	krona	.24
Switzerland	franc	.62

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